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ABSTRACT

Representatives from five West European countries and the U.S. present overviews of their respective countries' education systems and approach to vocational education. The introduction notes that both money spent on and student enrollments in vocational education are increasing in Europe as in the U.S. and that educational reform appears to take into account the need for more career development, more clustering of occupational areas, and more coordination with business and industry. Education system diagrams are included from each country, along with discussion of educational and governmental policy. Papers deal with (1) Great Britain--its further education, industrial training, teacher education, and financing and building: (2) Sweden--its comprehensive compulsory schools, the new organization of study with vocational orientation counselors and new forms of orientation to the working life: (3) West Germany--its occupational training system and full-time vocational schools: (4) Finland--a review of its development efforts, its problems and major issues: and (5) Denmark--trends in its educational development, the further education of teachers, and pedagogical development. Finally, an Office of Education deputy commissioner gives his overview of the present situation in vocational education in the U.S. (CP)

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COMPARATIVE EDUCATION FOR OCCUPATIONS:

An International Conference Report

Edited by

Carl J. Schaefer
Rutgers - The State University

The University Council for Vocational Education

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Preface

One of the 1978 undertakings of The University Council for Vocational Education was the organization and execution of an invitational international conference on comparative education for occupations. The conference format consisted of an approximate ten day visit by representatives of five European countries: England, Sweden, West Germany, Denmark and Finland.

The first seven days were devoted to hosting of the foreign visitors by the participating institutions so each could gain insight into occupational education in at least one state of our country. The second part (three days) provided opportunity for the guests to present papers on their country's occupational education system and were spent at the National Center for Research in Vocational Education in Columbus, Ohio.

The papers have been published with the hope that they will stimulate interest not only in the study of international education for occupations but the activities of the University Council for Vocational Education.

Acknowledgement is extended to Carl Schaefer who chaired the International Conference and for his editing of this publication. Also thanks is in order to the institutions that supported financiallly the effort and hosted our visitors as well as to The National Center for Research in Vocational Education for hosting the entire group on October 22-25, 1978.

B. Harold Anderson
1978-79 President
University Council for
Vocational Education

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INTRODUCTION*

Carl J. Schaefer

Distances grow shorter. People to people relationships become worldwide. Yet we as vocational educators know precious little about what our counterparts in other nations are doing to prepare youth and adults for the world of work. Even more is the fact that those who profess to be teachers of teachers have not expanded their horizons to include knowledge of other educational systems--especially those of occupational education from the developed countries of Europe.

Believe it or not, such countries as England, Sweden, Finland, Denmark and West Germany are all doing quite well in their endeavor to provide skilled workers for their labor force and economic way of life. Vocational education, worker education, further education or whatever term is used to describe education for occupations, is a growing concern in the countries previously mentioned and most of all of these countries are engaged in an ongoing reform of education, especially in the 15-19 age group.

Almost in every developed country of Europe the expenditure of vocational education dollars is increasing. This is in spite of the fact that the percentage of national income spent on education is remaining about the same. In a like manner the percentage of students in the age group 15-19 that pursue courses in vocational education is increasing. For example, vocational enrollment in Denmark numbers some 37 percent; in France 27 percent; in Sweden 48 percent and in Norway 31 percent.

* European Education Systems: Information Paper No. 1218 (Bristol, England; Further Education Staff College. 1977).

The reform of education appears to take into account the need for more career development, more clustering of occupational areas and more coordination with business and industry. Formal arrangements exist for the influence of industry on vocational programs in almost all of the countries with the possible exception of the Netherlands. Curriculums are determined centrally, either nationally or in central units such as states. Most vocational curricula have a common core and there is an extensive range of curriculums offered.

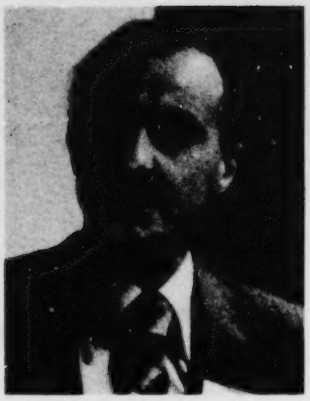
The condition of physical plant and buildings for vocational education is considered relatively good with many of the facilities being on par with those found in the United States. Staffing for vocational subjects is usually trained separately from other educators and the control for most vocational education varies between Ministries of Education and Labor.

Although it can be readily seen there are differences in organization and administration, much in common exists among vocational educators in the U. S. and abroad. Curricula is easily recognizable as are the physical facilities, hardware and the like. The clientele served are not unlike nor is the method of dispensing pedagogy. But what is most obvious is the similarity of common problems of a philosophical and socioeconomic nature. What the further education of England; the worker education of France; the Chambers of Commerce and Industry of West Germany; the adult education of Finland; the career orientation of Sweden and the problem-solving teaching of Denmark can contribute to the solution of our problems remain unknown to us here in the U. S. In a like manner, our successes are but unknown to our European counterparts.

Dan Dunham, Deputy Commissioner of the U. S. Office of Education, highlights the current situation with his words "Vocational Education - USA." Dr. Dunham recently returned from a high level meeting with the European Ministers of Education, thus he had a feel for what the University Council for Vocational Education was trying to accomplish. The text of Dr. Dunham's conference presentation appears as the last paper in this publication. All will want to read it because it is not only most candid, but it reflects a new and exciting direction for vocational education here in the country. Not only is there a note of urgency throughout Dan Dunham's remarks but there is also a sense of appeal for more universal knowledge of what is being done elsewhere.

If nothing else, we should be striving to make the vocational education distance become shorter in terms of the mutual interest that a first rate profession must display. Knowledge contained in this publication serves the purpose of shortening this distance. Each paper has been carefully and thoughtfully prepared by a practicing expert to depict the overall picture of education in general and vocational education in particular. Some may say the information is too general and not targeted enough on the vocational education. But as a first step, this is where we must start. Moreover, it has not been by chance that the University Council has chosen to commence its contribution to an international effort in comparative education for occupations with a small knowledgeable group other than at higher levels, such as the ministries. It is felt infinitely more can be accomplished through the development of such relationships. Next steps will include exchanges of information, materials and hopefully a continuation of study and conferences similar to the one just completed.

As was stated upon conclusion of the conference, "Most of all, a sense of mutual respect and common cause emerged. It was repeated time and time again, we are more alike in our quest for the education of youth and adults than the 3500 miles that separate us would have us believe."



ENGLAND

Frank Fidgeon
Deputy Chief Officer
Technical Education Council
Great Britain

Introduction*

At the beginning of the 20th century, general education was still something of a luxury in the United Kingdom. Education after school was more like a dream. For most people it was, at best, the prospect of very hard work at evening classes after a day in the factory or office, and this still applied as late as 1950.

By 1978, all that had changed. Education after school has become a boom industry. Opportunities to learn for self-advancement and for pleasure are legion. Full-time higher education is seen as something of a right; part-time education is available in some form or other to almost every household in the country.

It is estimated that each year at least six million people undertake some form of learning after school in the United Kingdom. The institutions offering this education are numerous and diverse. They include further education provided by local or county authorities; industrial training provided by employers, training boards and government agencies; universities, adult education centers and evening institutes, and so on.

The reasons people continue their education after school are varied. Many of them need qualifications for their careers; they need to earn examination certificates or learn practical skills. Just as many want to pursue their leisure-time interests or develop their appreciation of civilization or the natural world.

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* Michael Locke and John Pratt, Guide to Learning After School (London: 5, Pelican Books).

Others want to make a fresh start in life, try their hands at something new, or come to grips with the society in which they live. Social pressures or personal difficulties prevent many people from fulfilling themselves in their childhood and youth. Many people work in fields into which new technologies are introduced, and they need to retrain or to refresh their knowledge; while those who are made obsolete at work may need to acquire new skills.

Evidence of the demand for continuing education after school can be found in the explosive expansion of the number of students enrolled in further education programs during the last twenty years. Much of this expansion resulted from the increased number of people who continued their education straight from school. Older people taking advantage of educational opportunities have been particularly significant and have received government encouragement. The opportunity for people to benefit from learning after school is steadily widening.

We must remember that further education, for the most part, takes the form of vocational education, and the future of British industry is very dependent on this. The continuing technological development in industry requires effective and continuing education and training of its personnel. Many courses of study are, and should be, designed to meet specific job functions in industry as they are now, and as they might develop in the future.

Overview of the English Educational System (See Figure 1)

The basic structure of the whole education service has resulted from a number of Government Education Acts. The 1944 Education Act was perhaps the most significant of these. This act established two main bodies in education and a partnership between them. These bodies are the Secretary of State for Education and Science (or the Secretary of State for Scotland or Northern Ireland and, more recently, for Wales) and local education authorities. The Government legislates on the compulsory school period, and in the United Kingdom, it begins at five years of age and is completed at sixteen.

For many years, Britain was noted for its selective system of secondary education involving the examination of children at eleven years of age (the eleven plus). Successful students went on to the selected grammar schools, while the rest went to the secondary modern schools.

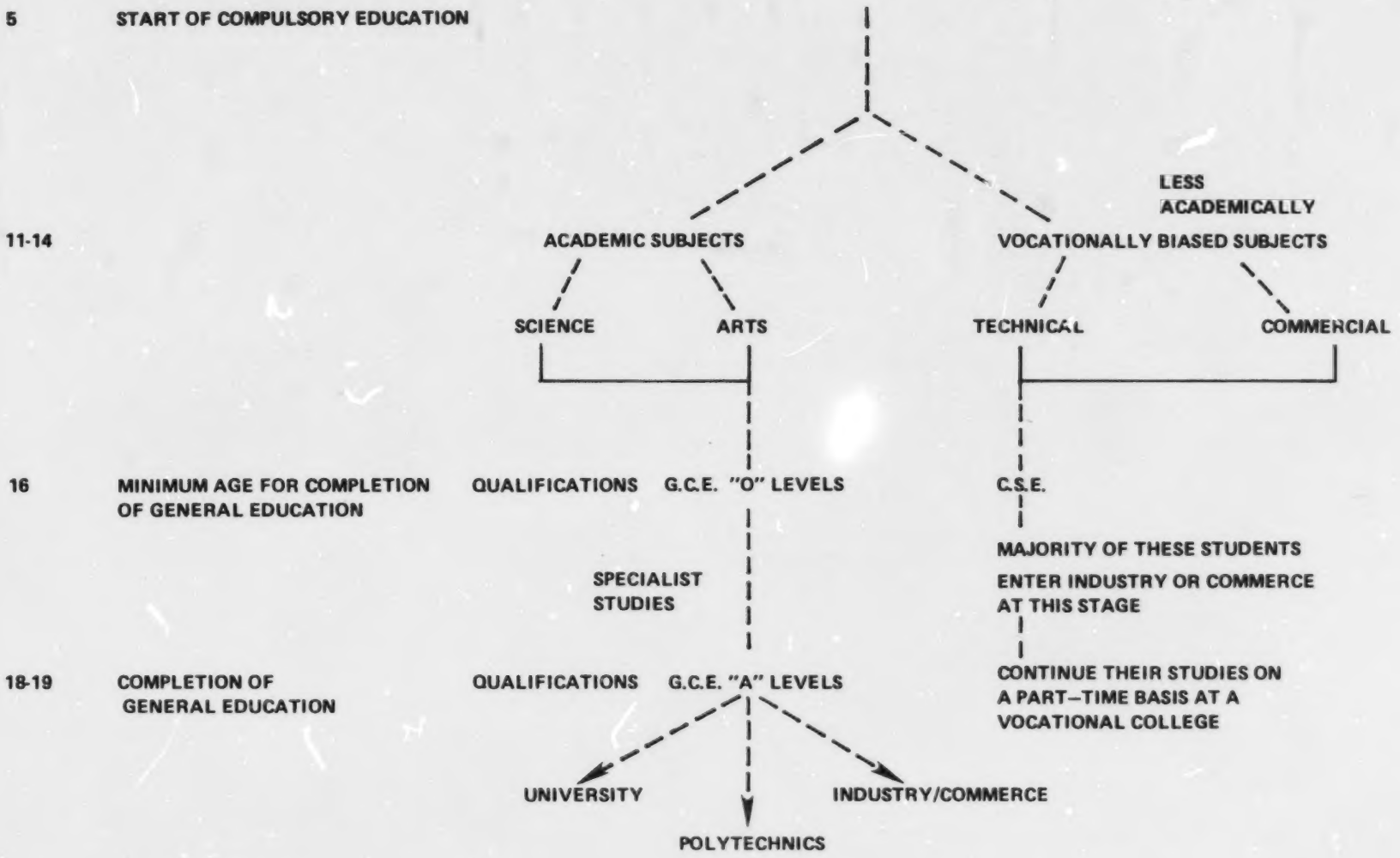

FIGURE 1. OVERVIEW OF THE ENGLISH EDUCATIONAL SYSTEM

This effectively produced first and second class citizens as far as progress into higher education and job opportunities were concerned. This form of selection has now virtually disappeared, and has been replaced by a system of comprehensive education.

The compulsory period of education provides a broad general education. No attempt is made during this period to introduce any specific vocationally oriented courses, although the children are expected during the latter stages to select subjects for more advanced study and to drop others. The choice is made with the guidance of teachers, career teachers and parents, but naturally, their ability in specific subjects and personal preference are the main contributing factors. The majority of the children complete their general education at sixteen, but more and more of them are staying on at school until age seventeen or eighteen.

At the age of sixteen, the students take externally prepared and nationally recognized examinations. The more academically inclined take individual subject examinations leading to the award of General Certificates in Education at Ordinary Level (GCE 'O' level), and the less academically and perhaps more practically inclined study for the Certificate of Secondary Education (CSE). Some children take a mixture of both examinations, depending upon their ability in individual subjects. Normally, students who complete a number of GCE 'O' levels successfully decide to continue their general education in three or four specific subjects until the age of eighteen with the aim of going into higher education. Upon completing this additional two years of study, they take the examinations leading to the award of the General Certificate in Education at Advanced Level (GCE 'A' levels). It is these awards which provide the normal entry qualifications into degree courses.

British universities concentrate solely on first degrees, postgraduate courses and research; they do not offer courses similar to the associate degree courses available in the United States. The "polytechnics" and other institutes of higher education provide degree courses (perhaps slightly more vocationally oriented than those of the universities) and other "higher certificates" and "higher diplomas" designed to meet the needs of the society.

Some of the children with GCE 'O' levels and the majority of children with CSE qualifications, leave school at age sixteen and enter employment in industry or commerce. Many of these children are given released time from their employment to study a vocationally related course on a part-time basis at the local college or further education or polytechnic.

Vocational Preparation (see Figure 2)

In the United Kingdom, the preparation of young people for occupations occurs through two main sectors: further education and industrial training. The Secretary of State for Education, through the Department of Eduation and Science, is responsible for further education, while the Secretary of State for Employment, through the Department of Employment, is responsible for industrial training. This split in the provision for vocational preparation works quite satisfactorily, although it occasionally produces management problems as to who should be doing what. However, it makes certain that both educationalists and industrialists are involved in making decisions as to the focus overall vocational preparation should take.

Further Education

This system contains some 770 colleges engaged in full-time and part-time education of a vocational nature. Some of these courses are at nonadvanced level (postsecondary), and some are in the field of higher education (advanced). These colleges (which have a variety of names--polytechnics, colleges of higher education, colleges of technology, technical colleges, colleges of further education, colleges of art, etc.) are, with few exceptions, maintained by local education authorities. The students attending these colleges may be divided into those pursuing advanced courses (normally these students are eighteen years old or older and take courses at a level above GCE 'A' level or the equivalent vocational course) and those pursuing nonadvanced courses (students sixteen years old and older whose courses are usually vocational in content). Another important classification distinguishes full-time students; 'sandwich' students (those who, if doing a "thin" sandwich course, generally spend half of each year in college and half in industry; or if doing a "thick" sandwich course, spend up to three years in college with a full year in industry "sandwiched" between them); and

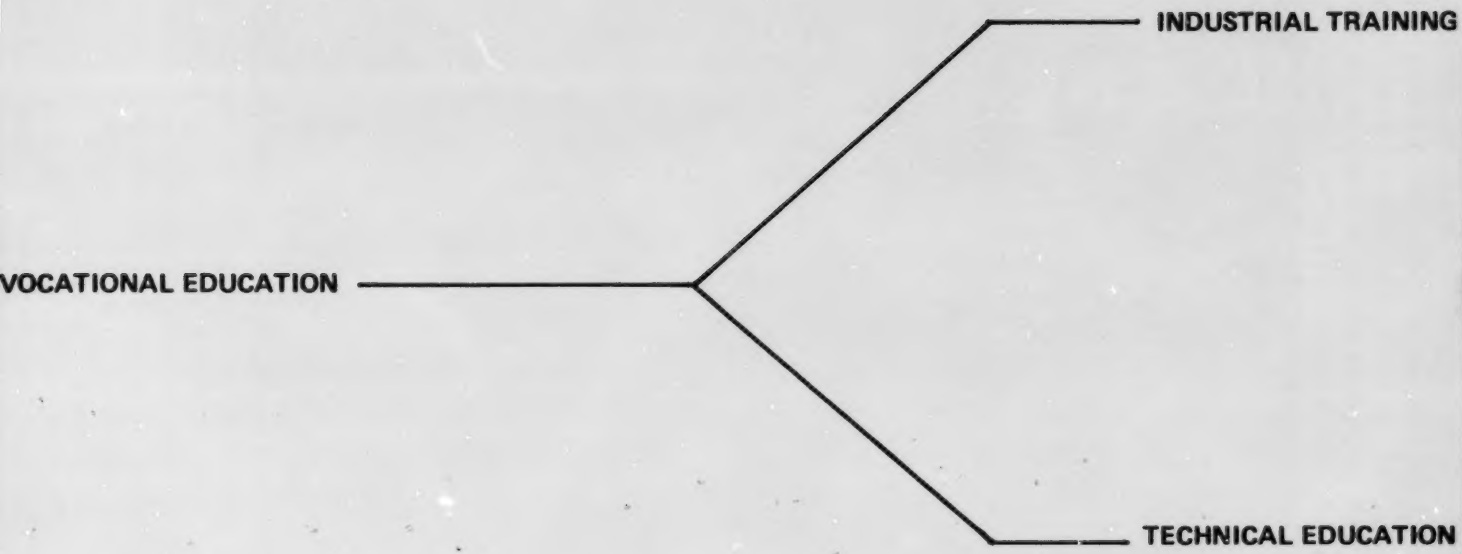

FIGURE 2. Vocational Preparation

part-time students (the majority of whom are sponsored by their employers). The last group includes (1) those on "day release" who attend college for one or more days--and in some cases evenings also--per week; (2) those on "block release" who attend college for "blocks" of full-time study of up to eighteen weeks interspersed with periods of work; and (3) those who study in the evenings only.

From the early 19th century to the present day, the further education system in the United Kingdom has continued to develop and change in response to urgent needs of the community or industry.

The further education system resulted from a variety of local initiatives in the early 19th century that were designed to meet the challenge of the Industrial Revolution. Central government has been involved in promoting vocational education and monitoring standards (including responsibility for certain examinations) since the 1850s, and local authorities have been empowered to supply or aid vocational instruction since the 1890s.

The years immediately following World War II saw a great increase in the demands made on the system, largely from ex-servicemen. It was during this period that the emphasis shifted somewhat from the predominantly part-time technical courses of the prewar years. The new pattern included a substantial portion of advanced and full-time work, with increasing numbers of students taking courses in preparation for the external degree examinations of London University.

Sustained demand for places in advanced courses caused considerable pressure on resources. The universities could not cope with the demand, and the concern for rationalizing the growing sector of advanced further education led to the establishment of the National Council for Technological Awards (NCTA) in 1955 which was given the right to award a diploma in technology at first degree level; and to the designation of eight (later increased to ten) Colleges of Advanced Technology (CATs) in 1956. The CATs were to concentrate on advanced courses and stand at the apex of a hierarchy of regional area and local colleges, the latter concentrating almost entirely on nonadvanced work (see Figure 3).

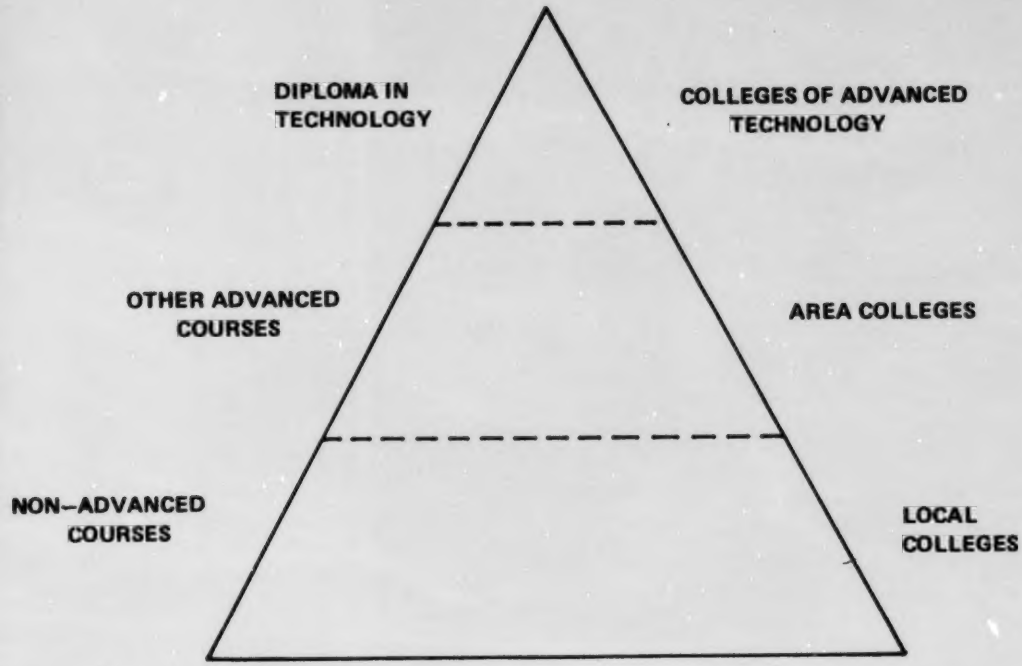
DIPLOMA IN TECHNOLOGY
COLLEGES OF ADVANCED TECHNOLOGY
OTHER ADVANCED COURSES
AREA COLLEGES
NON–ADVANCED COURSES
LOCAL COLLEGES

Figure 3.

The years following the establishment of the CATs saw a continued rapid rise in the number of students, especially full-time and "sandwich" advanced students. The latter in particular, with the encouragement of the NCTA, grew in importance in the CATs. The numbers of "sandwich" students increased eightfold between 1956 and 1964. However, the growth in the number of students was even more rapid outside the CATs.

Meanwhile, on the nonadvanced side, the prevailing mode of attendance changed from part-time evening to part-time day. In the period between 1938 and 1955 the number of full-time students more than doubled while the number for part-time day students had incrased almost tenfold in the same period. During the 1950s, automation in British industry had advanced considerably therefore creating different manpower requirements. In response to this, several revisions were made in 1961 in the structure of lower level courses. Part-time evening work diminished, "block" release was encouraged, the number of courses at technician level were increased, craft level courses were reorganized and more courses were provided at the lowest (operative) level. This led to an increasing rate of growth in the nonadvanced sector which, in turn, coincided with the passing of the Industrial Training Act of 1964.

The work of the twenty-five Industrial Training Boards set up under the Act has had significant consequences for the further education service. Demand for courses at all levels--day release, block release and sandwich--for employees in industrial and commercial concerns has been stimulated. New forms of courses and new courses have been developed; and machinery has been evolved to provide for the joint planning and integration of industrial training and further education.

In the advanced sector, the CATs were becoming more and more like universities in terms of their academic standards and ideals, although they retained a technological bias and encouraged sandwich courses. In 1965 they were removed from the local authority system and given university status.

In an attempt to cater to the still increasing demand for higher education outside the university, the government established by Royal Charter in 1966 the Council for National Academic Awards (CNAA). The CNAA was granted the power to confer degrees and other awards to students who successfully completed courses outside the university system. Only those establishments formally approved by the CNAA can run courses leading to these awards.

A new stage of rapid growth in the number of advanced students attending further education colleges (some 10,000 per annum between 1963 and 1966) accompanied the continued expansion of higher education in general. It became clear that some further measure of rationalization would be necessary (in terms of both economy and efficiency) if the full-time higher education sector of the further education system was to be developed on sound lines. A review revealed (1) that full-time degree courses were being provided not only by twenty-four regional colleges but also by thirty area colleges or colleges of commerce; (2) that about one hundred other colleges were providing full-time advanced courses below degree level, and (3) that a further hundred colleges were running part-time advanced courses. Rationalization was needed not only to make certain that scarce resources of accommodation, equipment and staff were used to the best advantage, but also to ensure that proper provision was made for the needs of students enrolled in lower level courses.

The government decided that the future of the leading colleges did not lie in a development program that would lead to university status. Instead, their distinctive lines within the local education authority further education system were to be developed. Government proposals, published in May 1966 in the White Paper "A Plan for Polytechnics and Other Colleges" (Figure 4) were based on this belief--that the role of these leading colleges was, and should remain, essentially different from that of the universities; and on the need for full-time (and sandwich) advanced work to be concentrated in a limited number of strong centers. These centers, to be known as "polytechnics" would have the staff, buildings and equipment to achieve and maintain high standards and to provide the proper setting for an active community of staff and students. It was proposed that they should be formed from existing institutions already substantially engaged in higher education; in some cases a single college would be developed as a polytechnic, but in others, two or more colleges would be merged; the aim being to create institutions offering courses in a broad range of subjects and capable of developing interdisciplinary studies.

The White Paper made it clear that the polytechnics would not have a complete monopoly on higher education in the further education system. Some of the other colleges already engaged in full-time higher education would continue such work where there was a need which could not be met by the polytechnics and where there was adequate student support. Many colleges would continue to offer a wide range of part-time advanced courses to meet local needs.

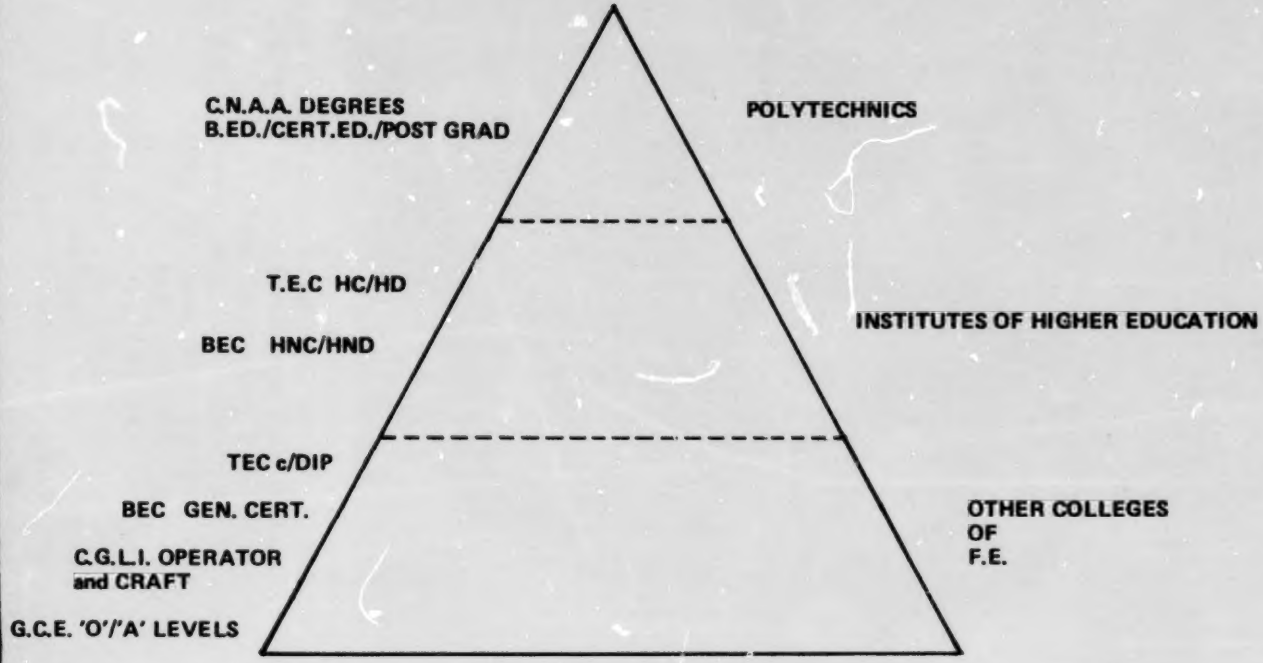

FIGURE 4. College Structure 1966

The first polytechnics were established in April of 1967, and now thirty of them are in existence. The most distinctive characteristic of the polytechnics is their wide range in both the nature of the student body and the level of courses offered. In contrast to the universities, where almost all of the students are full-time enrollees working toward first or higher degrees, the polytechnics not only have students working toward degrees in full-time or sandwich courses, but also have others enrolled in higher education courses below degree level, and many who are employed while enrolled in part-time courses. There are also some students enrolled in courses or undertaking research leading to higher degrees generally closely related to industrial or business interests. Thus, socially and academically, the polytechnic student body is more wide-ranging than that of a university, with a mixture of full-time, sandwich and part-time students, and with an academic range which includes the important subdegree areas.

The range in the levels of higher education courses offered has the great advantage of permitting students who find the course too exacting to transfer to another at a lower level, and allows students who demonstrate that if their ability warrants it, to transfer to higher level courses. This transferability is helped by many CNAA honors and ordinary degree courses (and other nondegree courses) having a common first-year program, at the end of which the student can proceed to the course most appropriate for him/her and by the ability of colleges, in suitable cases, to promote students who have completed the first year of a nondegree course to the second year of a degree course. This flexibility is a safeguard against waste and helps to ensure that students are challenged up to the limit of their ability, but not beyond it.

The polytechnics are primarily teaching institutions, and their efforts are concentrated less on the generation of new knowledge than on the development and application of what is known towards the fulfillment of the personal and professional concerns of their students and the solution of industrial and social problems. They are seen as being complementary to the universities, rather than in competition with them. The intent has not been to keep the two sectors rigidly apart; but on the contrary, emphasis has been placed on the establishment of links between the two sectors through the sharing of staff and the joint use of accommodations and other facilities.

A great variety of courses in terms of subject, level and mode of student attendance are provided throughout the further education system. The major types of courses at the various levels (most of them offered in a very wide variety of subjects) are as follows:

1. Courses leading to CNAA degrees and to external degrees of London University, mostly on a full-time or sandwich basis. These include courses leading to the degree of B.Ed.

2. Courses in teacher education leading to the Certificate of Education and the Art Teacher's Diploma or Certificate.

3. Courses leading to the Diploma in Higher Education (Dip HE) which was introduced in the 1972 White Paper. This program is intended to widen the choice in higher education by adding to the range of qualifications. The Diploma is gained after two years' full-time study. The Dip HE is a qualification in its own right, but it may also provide an alternative route to a degree (students can often transfer to a degree course), teacher training, or other professional training. It can also offer a student attracted to both arts and sciences the opportunity to pursue studies in both areas, as many Dip HE courses, while equivalent in standard to the first two years of a degree course, are less specialized than most degree courses, and are organized on a modular basis. Dip HE courses may be validated by the CNAA or by universities.

4. Technician and higher technician courses leading to the awards of the Technician Education Council (Certificate, Diploma, Higher Certificate and Higher Diploma) and courses for equivalent personnel in the business and commercial studies field leading to eligibility for the awards of the Business Education Council.

5. Operative and craft courses, conducted mostly on a day or block release basis, leading to Certificates of the City and Guilds of London Institute (CGLI) or of the Regional Examining Unions.

6. GCE 'O' and 'A' level courses.

7. Short "postexperience" courses, intended to extend and update the professional knowledge of the participants.

The further education system caters to a wide range of students; the range includes those students without formal qualifications as well as those with qualifications for standard university entrance and above. A very high proportion of the students are sponsored by their employers; day release alone accounts for 28 percent of all students.

Industrial Training (see Figure 5)

The Industrial Training Act of 1964 empowered the Secretary of State for Employment to set up industrial training boards (ITBs) to promote training in the industries for which they were given responsibility. There are now twenty-five statuatory ITBs.

An ITB has two main duties. First, it is required to publish recommendations on the nature, content and length of training (including associated further education) appropriate for occupations in its industry. Secondly, it must ensure that adequate facilities are available for the quantity of training required. Under the 1964 Act, an ITB has an obligation to impose a levy on employers to provide training which met the ITB's recommended standards and could give grants to firms with satisfactory training.

The levy/grant system operated by the ITBs ensured that all firms contributed towards the national training needs. The levy on a firm was based on the number of employees, but then the firms were eligible for a grant depending upon the quality and quantity of their training. Thus, there was a financial incentive to provide training. The levy/grant system did not prove wholly successful; however, for while certainly the quality of training improved greatly, the number of trainees did not increase significantly. Some firms found it easier to pay the levy and shrug off responsibilities. The operation of the levy/grant system also proved to be a little burdensome, so now some of the ITBs exempt those firms that are performing satisfactorily from the levy system. In the case of the Engineering Industry Training Board 80 percent of the large firms and 45 percent of small are exempt from the levy. Despite the success of the ITBs, they did not cover 37 percent of the working population and the system did not give the government or any central agency sufficient strength to react to national

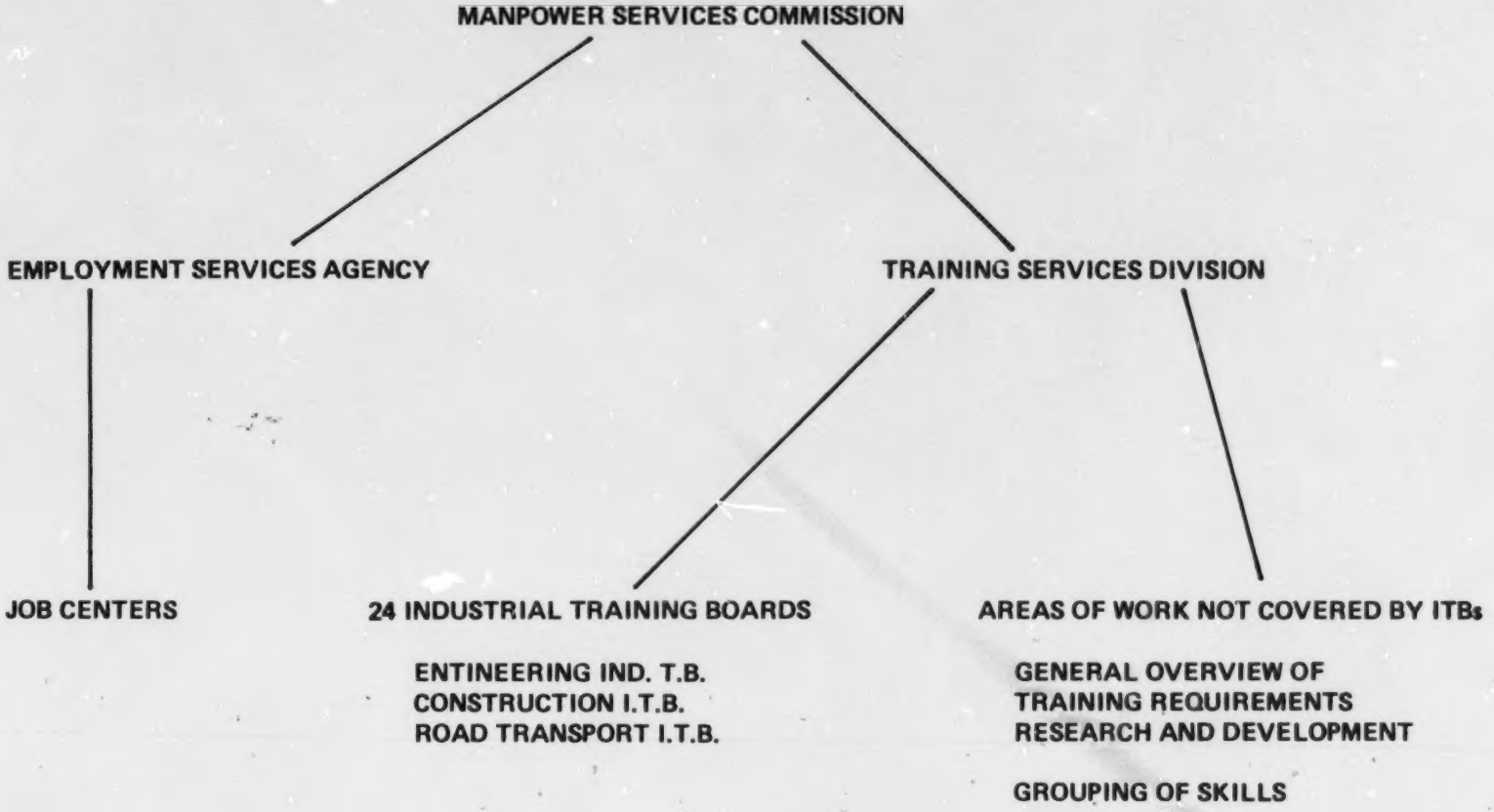

Figure 5. Industrial Training

developments. The Training Services Agency (TSA) now known as the Training Services Division (TSD) of the Manpower Services Commission (MSC) was established in 1974 and given responsibility for the ITBs and also for identifying and providing for any special training needs. The TSD is financed from central government funds and in 1976-77 had a budget of 285 million pounds. In its five-year plan for 1976-81, the TSD described its work under four programs: the needs of industry, the needs of individuals, the national training system, and national priorities.

The TSD has encouraged and assisted ITBs in doing planning studies and identifying long-term training needs; for example, the report "Training for Skills" and the development work on the grouping of skills have been of particular importance. The TSD has tackled the retraining of adults by providing directly the Training Opportunities Scheme (TOPS). By 1976, it had expanded opportunities for retraining to 90,000 places per year and by 1980 this should be 100,000 places per year. TOPS has proved to be a feasible and responsive mechanism for expanding retraining opportunities through its support for courses and payments to individuals.

TSD has also responded rapidly to youth unemployment by training under the Youth Opportunities Program. National priorities are also provided for. For example, the TSD encouraged the training of people for the North Sea oil industry and is now responding to needs in microelectronics.

Close relations between the FE service and industry are maintained at all levels. In the colleges, this is achieved in a variety of ways--through the Area Training Officers of the Industrial Training Boards; through Industrial Liaison Officers appointed by many authorities in association with the Department of Industry; through Officers of the Careers Service, and directly with companies. Close relationships are sought with employers who are kept fully informed of the courses the colleges are providing and whose representatives serve on college advisory committees. Students are visited by college staff at their places of employment, and the firms are often involved in the work of the appropriate department of the college. By means of these close contacts, college staff are able to keep up-to-date with developments in their own field and to discuss any problems with the company's training officer or supervisor. In a wider sphere, industry is represented at all levels of the FE service through membership in the Secretary of State's Advisory Council, in Advisory Councils, and in examining and validating bodies.

The complementary contribution made by the Further Education Service is vital to the work of ITBs. The associated FE undertaken by it helps to provide a basis which enables the trainee to benefit from his/her practical training and provides a long-term foundation to assist employees in meeting the changes in their work which are bound to be encountered as the pace of technological development in industry quickens.

Development of Vocational Education Courses

The majority of vocational education courses are now operated by three examination or validation bodies; they are as follows:

- The City and Guilds of London Institute (CGLI) responsible for all craft and operator courses or courses of equivalent standard.
- The Technician Education Council (TEC) responsible for all technician and higher technician in all fields that can be identified as broadly technical or scientific.
- The Business Education Council (BEC) responsible for all business and commercial education below degree level.

The three bodies are also the national award-making bodies.

The CGLI was established as an examining body just over one hundred years ago by the old Craft Guilds and Livery Company of London. It is a highly respected organization and provides examinations and awards for many overseas countries.

TEC as established by the government in 1973; BEC was established shortly afterwards. These bodies were to operate as autonomous bodies responsible for the development and operation of education programs within specific fields at polytechnics and colleges of further education throughout the country. For example, the terms of reference given to TEC were to rationalize the existing provision of technician education and provide:

1. A simple and flexible system of technician courses

2. Programs of study to meet:

   a. National needs of industry

   b. Local industrial needs

   c. The personal needs of the student

3. Opportunities for mobility of the individual:

   a. Vertical mobility - opportunity to climb the ladder

   b. Horizontal mobility - change direction because of changes in technology or problems with employment

   c. Geographical mobility

4. Enhanced status of the technician in industry and in the eyes of the community

The development of vocational education courses by these bodies benefits greatly from the close collaboration that now exists between CGLI, TEC, BEC, college teachers, TSD, ITBs, employers' associations, and local industry. The opportunity also exists for credit/transfer from one level of course to another as a result of close collaboration between CGLI, TEC, BEC, and the degree awarding bodies.

The basic courses of these organizations are designed to be studied on a part-time basis. Therefore, normally a student should be able to gain an intermediate award after two or three years of study and a final award after a further two years of study. For example, the basic award of TEC, the certificate, could be gained after 900 hours of study or, for students with appropriate entry qualifications, after 600 hours. The higher education certificate could be gained after a further 600 hours. Part-time students can normally complete 300 hours of study per year. Studies of an equivalent standard but much broader in their content can lead to diploma and higher diploma awards but the length of study involved would normally demand something more than part-time attendance (see Figure 6).

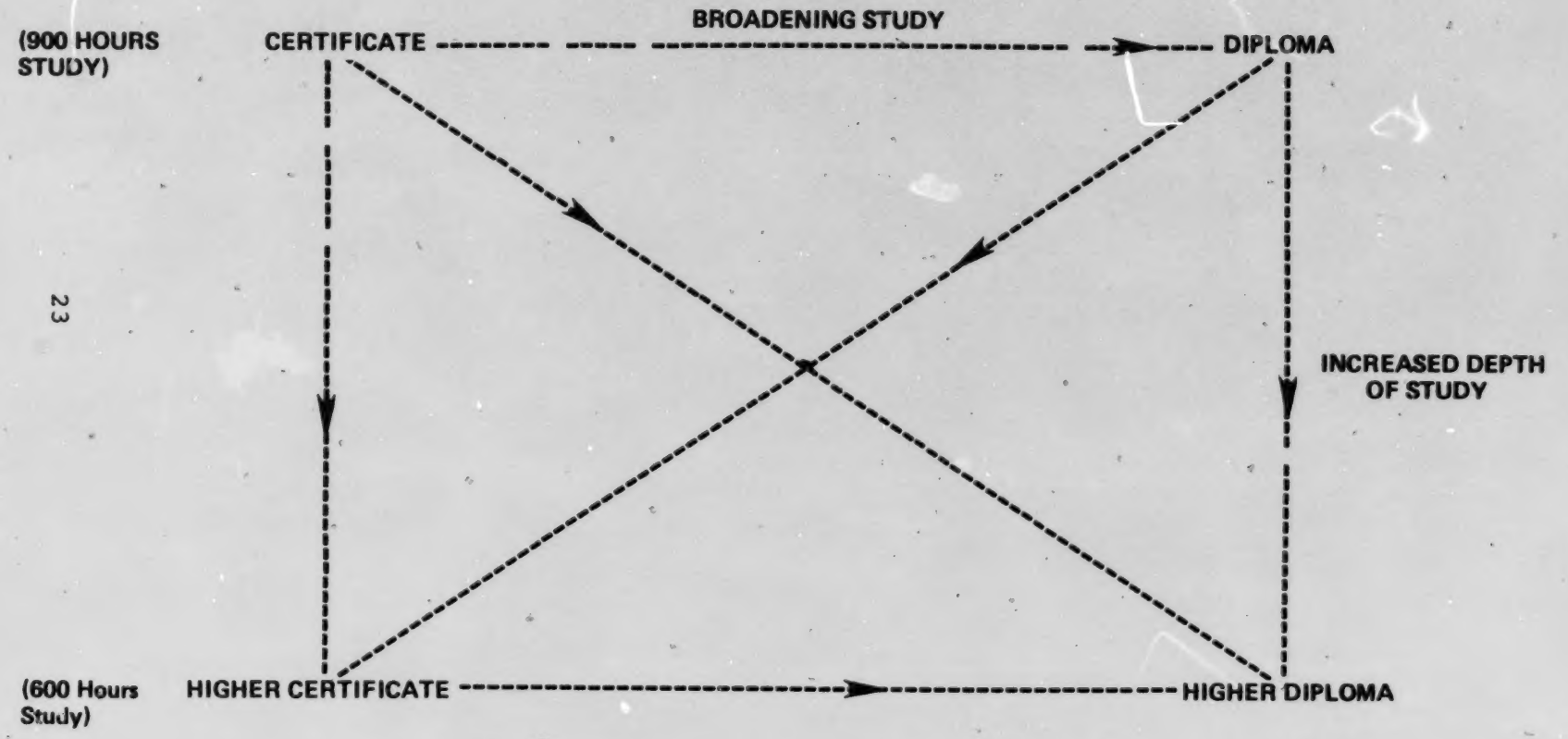

Figure 6. Technical Education Council Award Structure (1973)

In order to achieve its declared aims, TEC encourages the development of courses using a unit-credit award system (Figure 7). By this, mean courses can be designed containing a core of units to meet the national needs of a particular industry plus a small number of optional units to meet the local needs of the industry. Normally TEC certificate programs consist of fifteen units and once a unit is completed successfully, the student is given credit for that unit and on the successful completion of the fifteen units the certificate is awarded. The content of TEC units is stated in the form of aims plus general and specific objectives and this is probably the first step towards a competency base system.

Teacher Education

All new teachers entering primary or secondary education must have qualified teacher status, but this requirement does not apply to further education. There are two routes to qualified teacher status (1) Three-year certificate courses have been run at colleges of education and education departments of polytechnics. The courses involve study of one or two academic subjects which the student intends to teach, together with a study of "education" itself and teaching practice in schools. In July 1977, it was announced that the Certification of Education courses were to be phased out. In the future, the course will be a three-year course leading to the award of a Bachelor of Education degree. Entry to the certificate course was by a minimum of five GCE '0' level passes, but the normal entry requirement for the B.Ed. degree course will be two GCE 'A' levels, as for other degrees. Students may continue for a further year of study to get an honors Bachelor of Education degree; and (2) Students who have graduated in a specialist subject prior to entering teacher education can complete their course of study by means of a one year postgraduate course.

The further education teaching workforce consists of full-time teachers and a large number of part-time teachers, mainly concerned with evening studies. Part-time staff provide expertise and experience in fields which it is not desirable or practicable to carry a full-time member on staff--their employment also enables colleges to meet fluctuating demand for courses. It is difficult to legislate for teacher education under these circumstances.

CERTIFICATE PROGRAMMES IN MECHANICAL ENGINEERING

"COMMON CORE" UNITS

MATH I	PHYSICAL SCIENCE I	WORKSHOP PROCESSES AND MATERIALS	ENGINEERING DRAWING I	GENERAL AND COMMUNICATION STUDIES
MATH II	ENGINEERING SCIENCE II	MECHANICAL TECHNOLOGY II		GENERAL AND COMMUNICATION STUDIES
	ENGINEERING SCIENCE III			

OPTIONAL UNITS

MATH III	MANUFACTURING TECHNOLOGY II	ENGINEERING DRAWING II	
MECHANICAL SCIENCE III	CONTROL OF PRODUCTION III	INSTRUMENTATION AND CONTROL II	
ELECTRICAL SCIENCE III	QUALITY CONTROL	TEXTILE MATERIALS II	
DESIGN AND MATERIALS II	MEASUREMENT II	TEXTILE MACHINERY II	COLLEGE DEVISED UNITS
DESIGN AND MATERIALS III	MATERIALS SCIENCE II	MATERIALS SCIENCEIII	ASSIGNMENTS OR PROJECTS

FIGURE 7. Technical Education Council Program in Mechanical Engineering

In 1975, only 37.8 percent of the teachers in further education had received professional teacher training. Most of the training in the further education field is provided by four Colleges of Education (Technical) and they offer three types of initial training courses. These are:

1. One-year preservice courses--entrants must either be graduates or have an acceptable vocational qualification, plus appropriate industrial or commercial experience, and be at least twenty-five years of age

2. Four-term inservice sandwich courses

3. Part-time extramural courses

Many colleges of further education are now providing short education courses for new/untrained teachers.

A government committee recently completed a study of the training of full-time teachers in the vocational sector, and a report of the committee's findings is expected to be published shortly.

Administering and Controlling the Further Education Sector

The partnership of the Secretary of State and the Local Authorities has the general responsibility for administering and controlling the further education system. For practical purposes, the Secretary of State has two basic controls:

1. The provision of any courses at advanced (or higher education) level requires approval (which is given or refused on grounds of need and viability, any necessary academic approval being a matter for the appropriate validating body, like the Technician Education Council)

2. Control of the size and the content of the further education building program

Responsibility for dealing with proposals to provide advanced courses is devolved upon Her Majesty's Inspectors, who consider proposals in the light of the recommendations made about them by the appropriate Regional Advisory Council for Further Education. More generally, HM Inspectors keep

the Secretary of State and the Department of Education and Science informed of what is happening in the field, and in the course of their day-to-day work they advise individual local authorities and colleges. They also play an important part nationally by contributing to the discussions and policy-making activities of the numerous national bodies with an interest in further education provision.

The Secretary of State also seeks guidance from the National Advisory Council of Education for Industry and Commerce. The Council has three main functions:

1. To keep under review and advise the Secretary of State on national policy on the development of education for industry and commerce.

2. To maintain contact with industry, commerce and appropriate professional bodies.

3. To arrange consultation with the University Grants Commission (UGC) and other appropriate bodies on matters relating to education of university standard.

Local authorities administer and control courses at the local level and make decisions about starting new nonadvanced courses, but decisions concerning location and approval of advanced courses is left in the hands of nine Regional Advisory Councils. Each RAC was set up by voluntary cooperation between the local authorities including staff from the polytechnics, colleges, universities, and from industry and commerce. RACs have the function of making recommendations to the Department of Education and Science on proposals for new advanced courses which require the Secretary of State's approval. This is one of the main advisory functions exercised by them. In this field the Councils are concerned essentially with the demand, location and resources aspects; they are not ordinarily concerned with the academic merits of the detailed proposals.

Finance and Building of Further Education

The relationship between central and local government is traditionally described as a "partnership." The local authorities are not simply the agents for the Secretary of State's policies, nor do they have complete freedom of action. The 1944 Education Act provided the Secretary of

State with strong overall powers and the power to enforce an efficient education service. However, he/she cannot enforce specific policies on his/her own. In an effort to avoid cluttering up an Act, much of the developing policy is communicated in circulars and administrative memoranda, but these do not have the force of law. The local authorities are given the specific duties for running the education service and therefore are not always prepared to respond immediately to circulars and administrative memoranda.

There have been three examples in the last ten years of major reforms prepared by the government which have not received the unanimous support of local authorities. Long negotiations have been necessary and, in some cases, the Secretary of State has had to use certain controls the government has available in an attempt to press through its national policies. The most powerful controls the central government has over the conduct of further education are exercised through its finance of the education system and through its selection of building programs. The 1944 Education Act provides for the government to support the education service by means of grants. The mechanism is by means of a "rate support grant" which is a method of helping finance a range of local services which are supported by local taxes from revenue raised by the central government. A national association of local authorities negotiates the total expenditure for all local authorities acceptable to the government, and eventually agree upon a figure. The government indicates the proportion of that total expenditure it is prepared to offer in the form of the "rate support grant." In 1975, this amounted to 66.5 percent. Negotiations also take place about a formula for the distribution of the grant in each local authority. Local authorities are not tied to this agreement; therefore, the government cannot be certain as to the proportion finally allocated to meet the needs of the education service.

Building for the education service has to be approved by the Department of Education and Science. The local authorities initiate building schemes and present a list of proposed projects and their justification to the Department of Education and Science. The Department then matches the final decision, depending upon resources available nationally and the local needs.

Advanced further education is not provided by all local authorites in all sectors of work and therefore, special arrangements exist to spread the cost of provision among all the authorities. This special arrangement is termed "pooling." Contributions to the pool are calculated according to a particular formula and collected by the Department of Education and Science from the rate support grant. Local authorities then claim from the pool according to the amount of advanced work provided in that year.

At the individual college level, the extent to which its expenditure is independent of the local authority varies from one authority to another. Broadly, an instituion doing more advanced work can expect to have more freedom to control the spending of money provided by the local authority.

Conclusions

During the last thirty years, the British vocational education system has grown very rapidly. To some extent, it has changed direction on a number of occasions in response to national and industrial needs but has generally been reacting to needs rather than anticipating future needs. One successful venture in Britain which tended to anticipate needs was the Open University. The Open University would never have started if it had been in response to an identified need. The central government is aware of this problem and hopes that the mechanism it has not established in the further education sector will be more proactive in its approach. As part of this approach, Britain, like all advancing technological countries, must take steps to move further from its own setting and capitalize on occupational training innovations which have been successfully implemented in other countries. In university settings, a need was identified for comparing educational programs internationally, but it is only recently that efforts like those of the Council of Europe have been initiated, which moves us from a theoretical study to the reality of planning programs which build on the merits of other nations. Further conferences of this nature and plans for formalized bodies need to be implemented if we are to benefit from each others' work and experience in vocational education. This is a challenge that I hope we will not allow to slip away from us.

SWEDEN

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During the last three decades, the school reforms in Sweden have given us an integrated, uniform school system from nursery school up to the university. The compulsory nine-year comprehensive school covers pupils from seven to sixteen years of age. The nursery school is compulsory for the municipality but voluntary for the children. Most children, however, attend nursery school. The upper secondary school--or the gymnasium as we call it in Sweden--is a voluntary integrated school covering most preuniversity education for students at the age of sixteen to nineteen. In 1977, one of the latest reforms took place and affected the higher education which now was given a new structural framework. Figure 1 gives an overview of the entire system.

A Survey of the Swedish Educational System

Great changes have taken place in Swedish education since 1950. Before 1950, we had a seven year compulsory school system and in the senior level and upper secondary level, which is the preuniversity level, there were many different types of schools. By that time, in the fifties, it was a political goal to (1) give all children in Sweden the same chance to choose higher education, (2) give all children nine year compulsory school, and (3) integrate all pre-university education in two types of schools, namely: the compulsory nine year comprehensive school from seven to sixteen years and the upper secondary school--a voluntary two to four year school. The parliamentary resolution from 1950 was a start for this unitary school system and the experiment, with a nine year comprehensive school.

The upper secondary level was mainly reformed in the sixties when three separate forms of schooling--gynmasium, continuation school and vocational school--merged to form a single, integrated upper secondary school in Swedish named "Gymnasieskolan."

SCHOOL SYSTEM IN SWEDEN

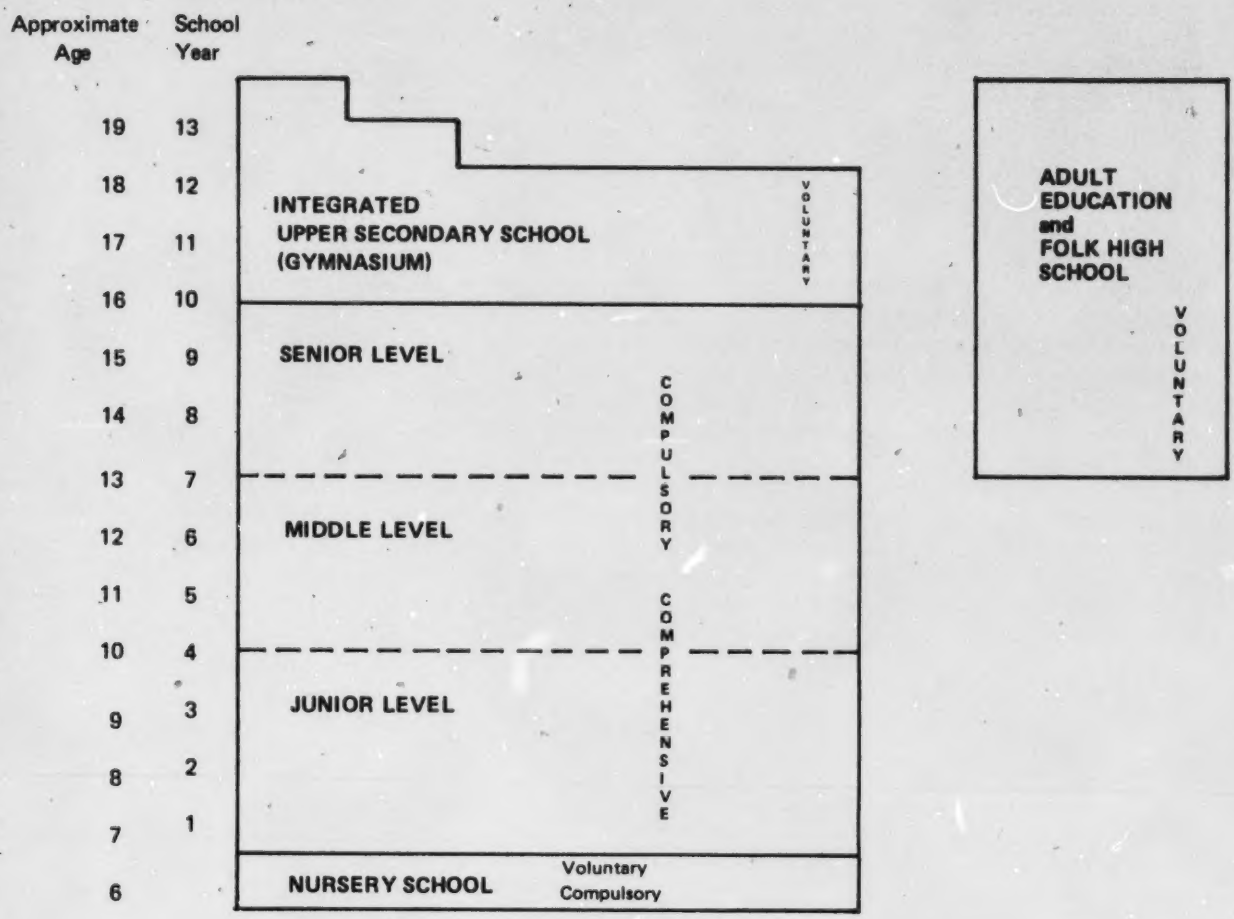

FIGURE 1.

At the same time, it was decided to decentralize the main responsibility to the municipalities. That was a problem as we in Sweden by that time had over 3,000 municipalities, most of them too small for this task. For this reason and among others, a couple of municipality reforms took place in the fifties. We got bigger municipalities and the number of them is now about 270.

The idea to decentralize the responsibility of schooling to the municipalities was to (1) make school an urgent question for all citizens and (2) guarantee more liberty and less dependence on initiative from above. Nevertheless, we achievd a very uniformed school structure in the whole country.

This depends on the fact that there are many central steering factors which uniform the Swedish school. To name a few of them:

1. The Education Act, resolved by the Parliament

2. The School's Ordinance

3. Resources and restrictions for the work to be done in comprehensive and upper secondary schools and its principal substances are specified in the syllabuses. In many cases, both the School's Ordinance and the syllabuses give detailed recommendations which are binding for the municipalities and for the school's employees

4. State subsidies amounting to nearly 100 percent are payable towards the salaries of principals and teachers in both school types. The State also contributes to the cost of building schools. No building project gets started unless a State subsidy is voted to finance it.

These facts and other strong components of central planning and control make for a uniformed school system and result in an equivalent standard of schooling for the whole country. We will emphasize that all pupils receive some basic skills in speaking, reading, writing, mathematics and also some basic knowledge in other subjects as foreign languages, civics, general science, etc. This elementary skill and knowledge is to be defined. Upon these basic skills, the education naturally would give knowledge and skills according to the need and capacity of the child.

We will also emphasize that learning is an active process. The educational method has to give the pupil a better chance to be active (1) in planning of the schoolwork and also (2) during the lessons by more elaborative teaching method, more exploratory method.

However, a number of factors operating inside and outside school have brought demands for nationwide changes in the school work and in the relations between pupils and staff. One of the goals for the new reform is also that the rather strict centralized control of the school system diminish.

The Comprehensive Compulsory School

Nine years of school attendance are compulsory in Sweden. This period begins with the autumn of the calendar year in which the student reaches the age of seven and concludes at the end of the academic year in which the student reaches the age of sixteen. However, most of the children will have gone to a preschool for one or more years before they reach compulsory attendance age. The whole of this period is spent in the comprehensive school which is a nine-year municipal school run free of charge.

The comprehensive school is divided into three departmental levels: junior, middle and senior, each running for three academic years. Every academic year covers two terms, autumn and spring, separated by a Christmas leave of about three weeks. Together, the two terms total forty weeks.

The levels and grades that make up the comprehensive school structure are in Figure 2. The studies pursued at junior and middle levels cover grades 1-3 and 4-6 respectively, and correspond to what is called primary education in other countries and those at the senior level cover grades 7-9, which is considered lower secondary education. Figure 2 also sets out the number of hours per week that students spend in class. Separate resources have also been allocated to give special remedial instruction for part of the school day for students with different kinds of problems.

STRUCTURE OF THE COMPREHENSIVE COMPULSORY SCHOOL

Junior Level	
Grades 1–3	20 – 30 hours per week (hpw) English, 2 hpw in grade 3
Middle Level	
Grades 4–6	34 – 35 hpw English, 2 hpw in grade 4, 4 hpw in grades 5 and 6
Senior Level	
Grades 7–9	35 hpw, of which 29–30 hours for instruction jointly given to all students and 5–6 hours for electives and freely chosen work. English, 3 hours per week in each grade

FIGURE 2

In 1976, the government presented a bill on home language training for children having native languages other than Swedish. All children attending nursery school and day nursery, compulsory school and upper secondary school who do not have Swedish as their home language are entitled to practice and instruction in their home language.

The municipalities are obliged to provide this instruction, but participation is optional for the children. Home language practice and instruction is conducted in small groups with an average of four children per group.

The Upper Secondary School

On July 1, 1971, the Swedish vocational schools were amalgamated with the gymnasium, preuniversity and the professional schools to form the new integrated upper secondary school. The aim in making this change was to create an integrated form of schooling to follow on the nine-year compulsory comprehensive system.

In fact, most comprehensive school-leavers go on to upper secondary school. Sollentuna, the school system which I direct, has about 600 students who leave the comprehensive school each year. More than 90 percent choose to go on to the gymnasium but the requirements and the dropouts lower that score to about 80 percent of the compulsory leavers. The new integrated upper secondary school is called gymnasium.

Unlike the comprehensive school, the gymnasium is divided into "lines" with different study goals and different vocational trades. The lines are grouped into three different sectors (1) arts and social science, (2) economics and commercial, and (3) scientific and technical (see Figure 3). There are twenty-two lines. The three-year lines and some of the two-year lines are more theoretical and preparation for advanced study dominates these lines.

One of the lines--the technical one--is a four-year course but may be terminated after the third year. The students may, after the third year, enroll in an institute of technology. Most of the two-year lines have vocationally oriented goals.

SWEDISH INTEGRATED UPPER SECONDARY SCHOOL

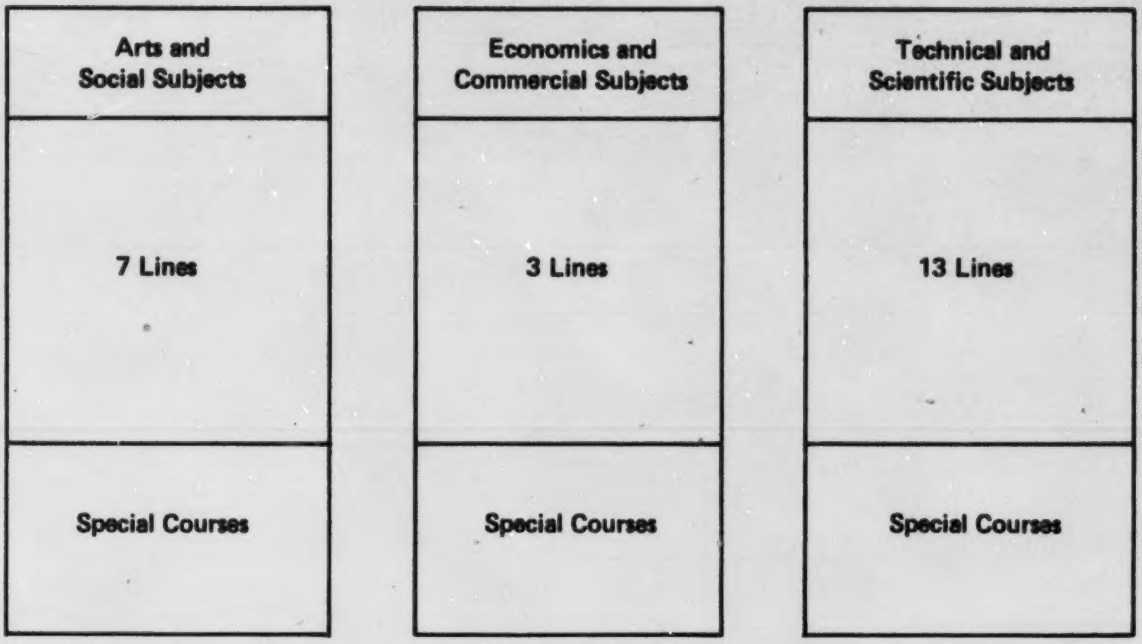

Figure 3

In the old vocational schools, there was mostly practical vocational education. When these schools were integrated in the upper secondary school their schedules were changed. The time for vocational education was reduced to about 50 percent. New subjects came up on the schedules so that all students had to study Swedish, civics or labor market orientation, gymnastics and in many cases, English.

The new vocationally oriented lines are more theoretical then the old vocational schools. In the second grade of most lines, and where appropriate in the third and fourth grades, there are several different branches and variants with partly varying contents and study goals.

Whereas the comprehensive school chiefly recruits its students from the local district, the upper secondary school often has several municipalities as its catchment area. Students with a long way to school qualify for a state travel allowance. Some study allowances are payable to all students but special study funds may also be payable as needed. Going to school doesn't cost the student anything. Moreover, most municipalities provide free of charge educational aids, school lunches and sometimes snacks.

As an example, I would like to say something about the gymnasium in the municipality of Sollentuna. Its name is Rudbecksskolan and it's built for 1,600 students. For the time being, there are about 1,300 students attending the upper secondary school level, but in the same school building there are also about 400 adult students in the daytime and about 1,000 adult students in the evenings.

Rudbecksskolan has 14 lines out of a possible 22. There are: one four-year, four three-year, two two-year, all of them theoretical. Furthermore, there are eight two-year vocationally oriented lines.

In one of these lines (the distribution and clerical line) they have a very special method of education. Most of the education takes part in form of a fictitious business. During these lessons the students start up a fictitious business, banks, insurance companies, firms of all kinds and so on. The students have to take part in all kinds of administrative work as in a real business. There are about 130 fictitious firms in Sweden and it has become a very popular and very effective method of education.

You now may ask, "Why do we have an integrated school on the upper secondary level?" I talked with my headmaster in Rudbecksskolan before I came here and asked him some questions about the integrated school in Sollentuna. He said that three main reasons have been presented: economic, social and educational.

First the economic side. The headmaster is of the opinion that he can use the teachers better. It is easier to arrange groups in specific subjects and it is also easier to arrange the support teaching. The use of educational material and rooms has also improved.

What about the social goal then? There have been changes so that students in different lines have better contact with each other. They are better informed about all three educational sectors.

Eventually, the educational goal--did we reach it? In the old vocational school, there was mostly practical vocational education. The old gymnasium had the theoretical lines and mostly what we call classroom teaching. In the integrated school, teachers in practical subjects and teachers in theoretical subjects interchanged teaching methods.

I furthermore asked the headmaster what he thought about the changing of subjects in vocational education. Apart from the subjects specifically pertaining to the special course in question, all students have to study Swedish, civics of labor market orientation, gymnastics and in many cases, English as I mentioned before.

He also thought this was a good thing. The students' interest in these theoretical subjects increased when they knew that a two-year vocational line including two years study of Swedish and English qualified them for University studies.

As to the theoretical lines there are also certain goals. One of them is to try to get more practical subjects on the schedule. The headmaster agreed to that and told about students in the scientific line who wanted to weld, which is not a subject in the scientific line. There is certainly a demand for getting some practice in the workshop for the students in theoretical lines. I have only spoken about the line system in our gymnasium but there are also about 450 specialized courses. So as you must understand, the gymnasium is a highly differentiated school type.

Universities and Colleges

And now it might be time to say something about the universities and colleges in Sweden. I live in Uppsala which is one of our six big university towns. Uppsala is the only town in Sweden that has two universities. The oldest one was founded in 1477 and the youngest 500 years later--that is to say last year--1977.

This new university is the University of Agricultural Sciences. In fact, it consists of four old colleges for agriculture, forestry and veterinary medicine, which are now gathered in Uppsala.

In Sweden, there are about twenty-five state institutions of higher education including the universities and these provide the bulk of higher education through a number of municipalities. With the Stockholm School of Business Administration and Economics as the only prominent exception, there are no private universities. Apart from the University of Agricultural Sciences, which is subordinate to the Ministry of Agriculture, all state universities and colleges are the responsibility of the Ministry of Education and Cultural Affairs.

From the academic year 1977-78, higher education in Sweden operated within a new structural framework. The reform decisions were approved by Parliament in 1975 and 1977. The decisive stands of the reform were (1) a comprehensive structure for higher education, (2) more liberal requirements for higher education, and (3) a decentralized system of decision-making.

The traditional qualifications to higher education were (1) completion of at least eleven years of primary and secondary schooling, (2) knowledge of Swedish corresponding to at least eleven years of study, plus (3) a command of English corresponding to at least nine years of study in the primary and secondary school system.

But the reform from 1977 has opened a new way to applicants who are twenty-five years of age or more and have (1) four years experience of working life, and (2) a command of English corresponding to at least nine years of schooling. Regarding the importance attached to proficiency in English, it should be observed that English is the first foreign language in Sweden's school system. Pursing a course of higher education in this country is virtually impossible without at least a good reading ability in English. Many of the books which higher education students are required to read are in English.

The new structure of higher education is aimed at providing recurrent education on a broad scale. Colleges have already successfully adjusted themselves to a spontaneous and rising demand from mature students for continuing education opportunities. This development has had a considerable impact particularly at the University of Stockholm. For some years now, about 60 percent of the students at the University have been twenty-four years of age or older.

New Organization of Study and Vocational Orientation (SVO) in the Comprehensive and Upper Secondary Schools

In 1971, the Swedish Parliament decided to try out new forms of study and vocational orientation in the Swedish school system. Under this new system, the careers teaching staff is increased by the introduction of a new type of official, so-called educational and vocational counselors. While career teachers combine study and vocational orientation with primarily teaching social studies, educational and vocational counselors have no such teaching duties. Their job is devoted entirely to the vocational orientation.

Each educational and vocational counselor is responsible for a service to 750 pupils. The guidelines adopted by the Swedish Parliament for the new organization of the study of vocational orientation may be summarized as follows. The study of vocational orientation should:

1. Give comprehensive and detailed information on education and the labor market and the choices available

2. Increase the individual's self-knowledge and help him/her to analyze critically his or her qualities and choices

3. Counteract such barriers which may restrict the individual's choice, e.g., social background and sex

4. Take part in the cooperation with pupils, parents, teachers and school welfare staff in united work for the development of the individual. This applies particularly to pupils with difficulties at school, immigrant pupils and pupils, who for various reasons, discontinue their schooling

Forms of Orientation to Working Life

The schools' orientation to working life occurs on both a theoretical and a practical level. Examples of a more theoretical orientation on working life are:

- Studies within the subject "working life orientation" in certain of the upper secondary school's two-year lines, where one hour a week in the timetable is devoted to this subject.

- Participation in the teaching by persons with experience in working life, e.g., school staff, gainfully employed parents, Employment Service officials, representatives of the labor market parties and/or different occupational groups.

- Study visits to various educational institutions, work places and employment offices.

In the comprehensive school, the student now takes part in:

- At least three study visits to work places outside the school for all eighth grade pupils.

- Two weeks practical experience at a work place for all ninth grade pupils.

- The possibility of extended practical job experience of four weeks. Total practical experience must not, however, exceed six weeks for each pupil.

As from the academic year 1977-78, a proposal for increased practical orientation on working life is being tested over a three-year period in more than 60 of Sweden's 270 municipalities. According to this proposal, each pupil spends a total of six to ten weeks at work places. This includes study visits to work places during the pupils' early years at school (junior and middle levels) and periods of practical experience of at least one week at the senior level. With a view to giving the pupils a wide experience of working life, each pupil should, according to the proposal, be given an opportunity, if possible, of gaining practical experience within each of the following economic sectors:

- Technology and manufacturing

- Commerce, communications, agriculture and forestry

- Office work and administation, health and medical services, and teaching.

In the upper secondary school, there are opportunities for pupils to gain practical experience of working life in a similar way by means of the so-called vocational orientation week. This applies particularly to pupils in upper secondary school lines, where practical job experience and/or practical elements in the teaching are lacking or inadequate (the so-called theoretical lines).

SSA Councils

In order to make practical orientation on working life possible for pupils and school staff, cooperation is necessary between the school, the Employment Service and the labor market parties. This cooperation has taken shape in local planning councils within each municipality--so-called SSA councils (SSA stands for cooperation between school and working life). The SSA councils are made up of representatives of the school, the Employment Service and employer/employee orgranizations. The most important duties of the SSA councils are:

1. To get working life to take part in the school's activities, leading to closer links between the school and real life

2. To see that unemployed young people obtain help in finding a training or an occupation which is suitable for them

3. To give school staff more insight into the labor market and courses of study, which may serve to enrich the school's teaching. It is of educational importance that study and vocational orientation be integrated in all teaching

It is hoped this overview of the Swedish educational system will help strengthen your understanding and our ties with our common professional endeavor. I can assure you that Swedish education has a lot in common with its U. S. counterpart.

WEST GERMANY

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Koblenz, Germany

Description of the Educational System in Western Germany

Compulsory education for all children in the Federal Republic of Germany begins at age six. As a rule, it continues for twelve years and is made up of nine years of full-time and three years of part-time schooling. The educational system includes, in addition to pre-school institution (Kindergarten, Eingangsstufe, Schulkindergarten), an elementary school (Grundschule) common to all children extending from first through fourth grade. (See Figure 1)

This common elementary school serves as the foundation for the general education secondary schools, i.e., Hauptschule (grades five through nine), Realschule (grades five through ten) and the Gymnasium (grades five through thirteen). In addition, in all states (Lander) there are Gesamtschulen (experimental comprehensive schools) extending from grades five through ten.

Grades five and six in all general education schools are designed for the preparation and guidance of all pupils for their further education. To achieve this goal, the Conference of Ministers of Education of the eleven states has concluded an agreement uniformly introducing the so-called Orientierungsstufe (orientation level). With the introduction of this segment and the harmonization of the curricula in grades five and six of all schools, the pupil's ability to transfer from one educational track to another has been vastly improved and decisions as to the nature of further schooling have been deferred to grade seven.

After completion of grade nine (Hauptschule), the majority of students either transfer to vocational training or to employment. Students completing grade nine who choose not to continue their education in general education schools (Realschule or Gymnasium) must attend one of the various

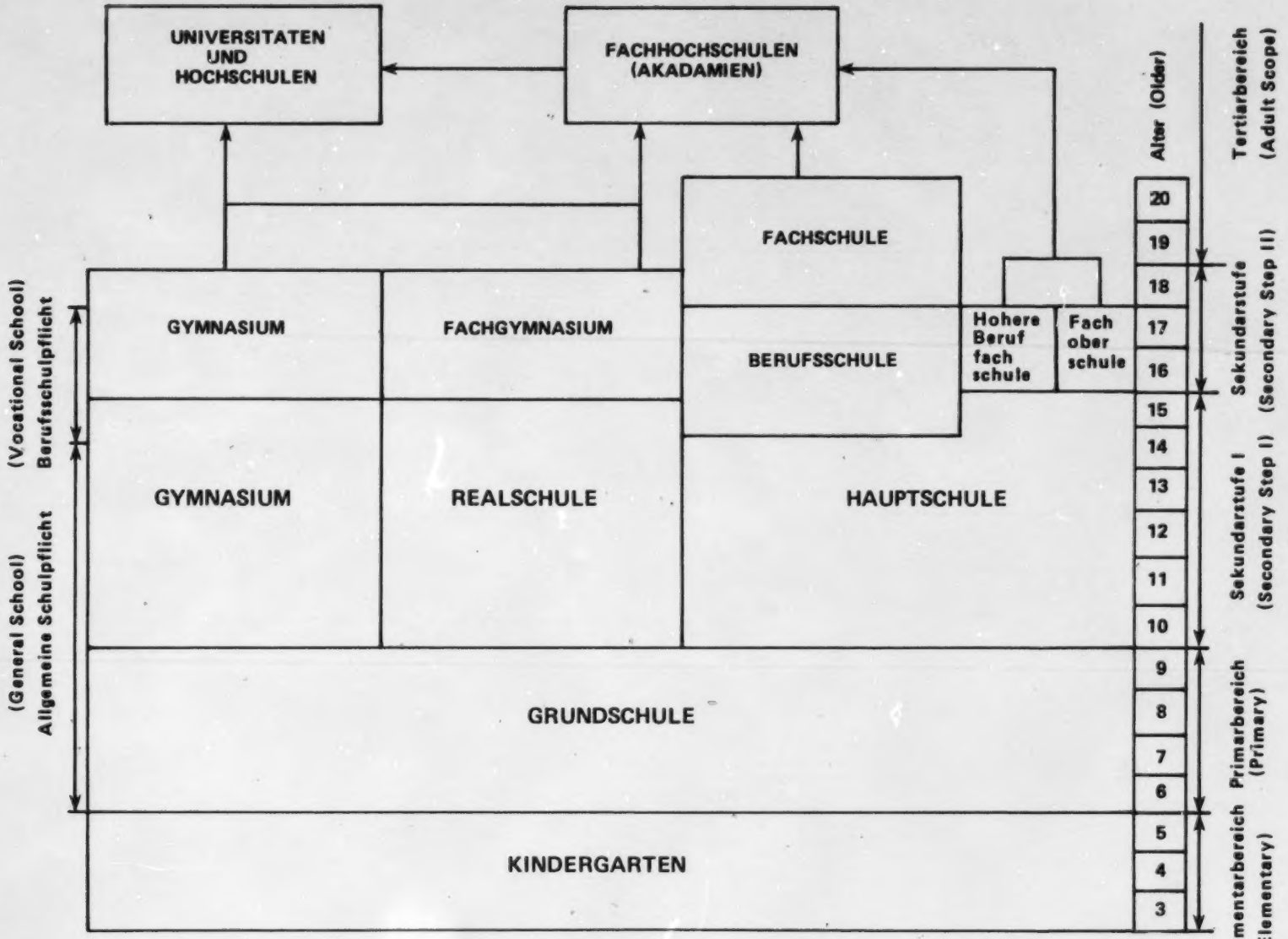


FIGURE 1. Overview of the West German Educational System

vocational secondary schools (compulsory vocational education) at least on a part-time basis and for a period of at least three years in addition to their vocational training or employment. Realschulen and Gymnasien provide for an elective termination of education upon the completion of grade ten (mittlere Reife) enabling students to enter training for skilled employment or the lower professional ranks or to transfer to a Fachoberschule (career-oriented upper secondary school).

Students in general education and vocational secondary schools may enter institutions of higher learning if they take certain specified courses and pass the required final examinations. Upon the completion of twelve grades, students may enter the Fachhochschule and on the completion of thirteen grades, they may enter universities or equivalent institutions of higher learning. Institutions for continuing and adult education provide various forms of further study after completion of education.

In the primary and secondary schools, students are usually grouped by age. Frequently, however, ability groups are formed from a specified grade onwards (usually grade five or grade seven) in such subjects as language study, mathematics and natural science. Decisions as to promotion to the next grade, or failure and the need to repeat are made on the basis of the achievement of each student during the course of the school year in question. The evaluation of students is made on the basis of marks and in the so-called reorganized upper level of the Gymnasien on the basis of an additional grade-point system.

The curricula of the various schools are determined by the Ministry of Education of the respective state. They are developed with the participation of teachers and experts either on the basis of guidelines or a framework worked out by the Standing Conference on Ministers of Education or on the basis of consultation among the states.

In the institutions of higher learning, courses of study are, as a rule, divided into semesters. Depending on the discipline, a course of study consists of anywhere from six to thirteen semesters.

Career outlets differ according to study objectives. Hence, the successful conclusion of the program may enable the graduate to enter further study in the preparatory service required of teachers, judges and other civil servants or directly to enter certain fields of employment (as chemist, physician, psychologist, in business management) as the case may be.

Attendance at all public educational institutions is free of charge. All necessary school supplies are either furnished without charge or loaned to the students. Personal support is required in part from the parents in the provision of materials.

Under the terms of the Bundesausbildungsforderungsgesetz (Federal Education Assistance Act) additional financial assistance is granted under certain conditions to students beginning with grade eleven in both general and vocational secondary schools and to students in institutions of higher education. In the latter, financial assistance is limited to a period equal to that under which the course of study in which the student is enrolled can normally be completed. Financial assistance is granted only if the student's own income and property or that of those legally responsible for his/her maintenance are insufficient.

The Occupational Training System

The German vocational training system has a long tradition. Its beginning traces back to the medieval handicraft apprenticeship which strictly took place within the scope of the guild regulation and which completely integrated the apprentice into the master's household and working community. Thereby, the master was not only responsible for vocational training but also for ethic and moral education. Therefore the master acted as a substitute for parents. A simple demonstrating, watching and imitating of the handicraft skills were the educational principles of vocational training at that time. Still, until the turn of the century the handicraft training was the basic for a qualified profession in the industry. Only thereafter did an independent industrial training system develop.

It was much later that the school was introduced as a second partner in our today's so-called dual system of vocational training.

Only at the beginning of the twentieth century was the actual vocational school introduced. These early vocational schools concentrated on teaching the knowledge of the profession and the development of a self-didactic in vocational education. Actually, it was not until 1920 that the name "vocational school" came into use. In 1938, it became obligatory to attend a vocational school after visiting the "Volksschule" (an upper division of the elementary school).

Until recently, the rules for the training shops were set up by the self-administered organs of business and industry, e.g., the Chambers of Commerce and Industry and the Chambers of Trade. Their legal status is that of corporations under public law, whereas by virtue of their function, they are institutions of economic self-government. The most important function of the German chamber is to represent the interests of its members as a whole, that is, persons engaged in gainful activities. Only in 1969 the German Parliament enacted the Vocational Training Act which combined the few rules contained in other statutes. This legally sanctioned a great deal, which up to then was the chambers' statute law without changing the basic training system itself. In particular, the legislation acknowledged the essential criteria of the operational training: such as providing a broadly conceived basic preparation for an occupation, a wide set vocational basic education, the technical skill and knowledge in a systematic training program necessary to engage in a skilled form of occupational activity, and acquiring the necessary occupational experience. Above all, the latter affirms the special part of the companies' vocational training.

The Vocational Training Act regulates the training of young people after compulsory education; but also combines the vocational training, the further training and the vocational retraining. According to the constitutionally established competences, the Vocational Training Act is not effective for vocational schools. For them, the respective federal states are responsible. That brings many problems. To eliminate them causes great difficulties, but as a principle one can say that the qualifications which are required by vocational training are federally uniform.

More specifically, vocational training is the phase which follows the general obligatory education and which generally includes young people between fifteen and eighteen years. At the end of 1977, there were 1.4 million young people in Western Germany. Of these, approximately 560,000 started their training in 1977. That was more than half of the corresponding age group.

The youths in the age group from fifteen to eighteen years were in the following educational phases: 20 percent attended grammar schools and comparable secondary schools preparing for university education; 20 percent attended full-time vocational schools, some of which provide an occupational qualification; 10 percent attended vocational schools without receiving on-the-job training at the same time; and 50 percent were occupational trainees (apprentices).

The criteria of worker training which are undertaken from the Vocational Training Act perform two functions (1) they define the fundamental structure of the worker training, and (2) they set up general didactical principles for the training. Acquiring the necessary professional experience is the most important and characteristic sign of occupational training. This ensures that the training proceeds under the same conditions under which the acquired profession has to be practiced later. Therefore, one cannot forego a training phase. On the one side, the apprentice can only learn at work what will be necessary to meet the changing demands in case of emergency. On the other side, he/she can learn the various social relationships within the world of labor. In addition, learning by assisting is very motivating, especially if one can see success. It stimulates independence and the sense of responsibility--attributes which are vital in developed industrial society. This means that the apprentice can prove the gained knowledge and skill by specific job tasks and real working conditions; thus training in a company provides more than institutionalized and organized learning processes.

The general didactical principle is from the general--the wide fundamental education; to the special--the teaching of technical skill and knowledge for a qualified job; to the application of the professional experience. This principle has established the training by stages, which divides the three years of training into fundamental, essential and professional training. These three stages express an increasing specialization in the training content.

The training content has become more and more coherent in the course of the technical development, especially in the industrial training field. This has made it necessary for more basic content not bounded a specific production. For example, the so-called basic skill of metal working includes filing, drilling, measuring and checking. Special training workshops for teaching these skills were established in medium sized and larger factories. Where smaller factories could not establish and maintain their own facilities, centralized workshops were established and supported by the chambers and associations. These facilities can only compliment, but not replace, the operational training, as they do not have the advantages mentioned previously. As a rule, they only simulate the best practice and are stimulated by providing considerable public funds for meeting the investments. The number of these centralized workshops has increased considerably during the last years; however, not always according to the demand.

For every profession, the training content is established in a training regulation. Every company is obliged to perform the vocational training according to this regulation. The vocational training must be specifically planned; including a timetable and syllabus. The timetable and syllabus must be embodied in the vocational training contract. The responsible authorities have to supervise the provision of vocational training and provide encouragement through its advice to training employers and apprentices. For this purpose, they have to appoint training advisers.

One of the most important tasks in a dual system is to determine the respective training content to companies and vocational schools. This determination depends on the abilities of the two partners to provide the best possible training opportunities. The simple scheme of practice in the company, and theory at school does not meet today's data and demands.

The different competences for vocational training established in our constitution make the practical coordination difficult. These competences are established by two parties--the Federal Minister of Economics and the Minister of Education of the eleven federal states. The procedure for this coordination is very expensive and tedious and does not always lead to satisfying results. The intention of the procedure is that a committee of the federal government and the individual states decide which vocational regulations

should be changed or revised, how the basic conception should be regarding arrangement and duration of the course, and which basic points should be given for the scholastic and operational training period and for the basic structure regarding the content. The industry complains that it is not participating in the decisive committees, but only in advisory groups of experts. Therefore, important conclusions are made without it.

Training the Instructors and Teachers

The instructors in industrial establishments must fulfill the following requirements: completed vocational training, relevant experience and minimum age of twenty-four. Additionally, the instructor must have the necessary knowledge of the teaching methods in vocational education. The contents and dimension of these additional qualifications are established in a judicial regulation. This regulation includes the following topics: basic questions of the vocational training, planning and realization of the training, knowledge of youth psychology as well as legal bases. This knowledge has to be tested by examination before the Chamber of Commerce and Industry. The training in handicraft trades is regulated by the Handicraft Regulation Act, which is the base for training apprentices.

There is a difference between the teachers of professional theory and those of professional practice. Teachers of professional theory are university graduates. Completion of high school (Abitur) and the proof of vocational experience are the terms of admission. Normally, the study lasts about four years. The additional training in professional practice takes at least one year. Thereafter, a preparation training follows at specialized training institutions which takes about eighteen months. The preparation training ends with the second state examination.

The teachers of professional practice must have a completed vocational training and hold a certificate from a relevant technical school, which lasts about three half-years or a completed vocational training, and a relevant examination for a master's certificate. The training itself takes eighteen months, equally divided between scholastic training and theoretical training.

The Role of the Vocational School

In addition to the training in a company, the vocational school is the second partner of the dual training system. The statutes of the eleven states require very young persons to go to a vocational school after the nine years educational school, irrespective of whether the young person has a vocational training or an employment relationship. The exception is if he/she goes to a continuing educational school (e.g., a secondary school). The compulsory vocational school normally takes three years or up to the end of the eighteenth year or up to the conclusion of the vocational training.

Usually the cities, towns or rural districts support the vocational schools. They build and maintain these buildings. Under certain circumstances, the states give subsidies to the building costs. Instructional costs are also met by them. However, the teachers in most states are officials and are paid by the states. Companies can also establish so-called "work schools" or "work vocational schools." These schools are then subject to government control and to the private school statutes. Here only employees of the company may attend.

The lessons will be given in one or two days a week or in one instructional block which extends several weeks. In the part-time school, eight to twelve hours will be taught for forty weeks each year. In block lessons, the vocational school will be attended daily in sections lasting four to thirteen weeks. The instructional content does not change due to this difference.

The Ministers of Education of the States decide on the courses of instruction. Nowadays, the Conference of the Ministers of Education has resolved basic curricula in order to simplify the operational training. These curricula are compatible with the training regulations which are federally uniform. Generally, the following subjects will be taught:

Commercial Vocational Schools

Economics, correspondence, commercial mathematics, bookkeeping.

Industrial Vocational Schools

Technical instructions, technical mathematics, technical drawing.

In addition to these general subjects, there will be taught: social and economical studies, German, foreign languages, sports, religion.

Vocational students who are trained in the same profession are placed together in specialized classes in order to be taught closely related professional subjects. If there are not sufficient vocational students for a class, students of similar vocations will be placed together. If that is impossible, vocational classes will be formed within several school districts. There are also a few vocational schools for professions (splinter professions) in which only a few students must be trained. These schools include the whole country. The trade associations can also sponsor such schools.

Full-Time Vocational Schools

Berufsgrundbildungsjahr

In the recent years, the basic vocational school (Berufsgrundbildungsjahr) has become increasingly important. After completing this basic year, the apprenticeship time is reduced one year. The lessons in this basic year contain practical, theoretical and general courses, and is differentiated according to thirteen vocational fields. In the second half-year, the teaching concentrates on six special areas within the thirteen major vocational fields.

Berufsfachschule

Berufsfachschulen (full time vocational schools) prepare their students for a field of employment or provide vocational training, while at the same time improving their general knowledge. To be admitted, students must have successfully completed Hauptschule or Realschule, depending on the type of training they wish to obtain. The program at Berufsfachschulen varies in length depending on the student's specialty and career objectives. It takes, however, at least one academic year. There are many schools providing programs of this type, including commercial

schools (Handelsschulen), schools teaching child care, and vocational schools training assistants for the various technical fields. All Berufsfachschulen end with a final examination. In two year Berufsfachschulen where a Hauptschule leaving certificate is the prerequisite for admission, the acquisition of a certificate equivalent to that from a Realschule is usually made possible. Hours of classes range from thirty to thirty-five a week. Teachers must have the same training as teachers at Berufsschulen.

Berufsaufbauschule

Berufsaufbauschulen are schools attended by students who are undergoing vocational training or have completed such training, concurrent with or subsequent to their enrollment in a Berufsschule. They teach general and vocation-oriented subjects at a more advanced level than the Berufsschulen. Students graduating from Berufsaufbauschulen have the equivalent of a Realschule education (enabling them to enter Fachschulen). The program consists of a minimum of 1,300 hours of classes. The Berufsaufbauschule, as well as the Berufsfachschule, offers several areas of specialization as follows: general commercial, industrial, industrial-technical, home economics-nursing, social work, and agriculture.

Subjects taught in the programs of all Berufsaufbauschulen include, in addition to the career-oriented subjects, German; one foreign language; history and civics; geography and economic geography in the area of general-cultural and social science subjects; and mathematics, physics, and chemistry in the area of mathematics and natural science. Career-oriented subjects offered in all fields of specialization include economics and business management. Teachers must have the same training as teachers qualified to teach at Berufsschulen.

Examination

Every apprentice must take a final examination in order to qualify in his/her vocation. For these examinations, the responsible authorities have established a Board of Examiners, which are usually the Chambers of Industry and Commerce and the Chambers of Trade. Every Board of Examiners consists of at least three members: an equal number of representatives of employers and of employees,

and at least one vocational school teacher. At least two-thirds of the total membership must consist of representatives of employers and employees. Serving on a Board of Examiners is honorary. The responsible authority in charge issues examination regulations for the examinations.

The examination standards are established in the training regulations. Depending on the vocation, they can provide an examination of proficiency and/or knowledge. For the proficiency examination, practical tasks are required. The examination of knowledge is written and/or oral. For the written examination, programmed exercises are used more and more. When the candidate passes the examination, he/she receives a certificate. The costs for the examination are paid by the employers.

The certificate is not a license. At first, it is meant as proof of the ability for a certain professional skill. But it is also the base of professional progress. This basic examination must be passed in order to be admitted to a master examination and to many other further educational examinations, such as those given by the Chambers of Industry and Commerce and for the professional qualification to train in a number of vocational and economic fields. Furthermore, it is the base that establishes the laborer pay level.

Financing

The companies themselves finance the vocational training, which they carry out. In 1976, their expenses were more than 12 billion DM. About 60 percent of this amount was allotted to training allowances for apprentices, about 25-30 percent for instructors' salaries, and approximately 10-15 percent instructional and maintenance costs. For three years of training in an industrial/technical field (skilled worker training), the net costs (deducted by the production capacity) amounts to approximatly 40,000 DM.

Financially needy youths can receive vocational training aid according to the rules of the "Labor Promotion Law" of the Federal Institution for Labor. In 1976, they paid 162,700 youths about 260 million DM.

Regarding the increasing number of school graduates in the next years, federal and state governments have decided to pay bonuses to companies which provide additional training vacancies. Particularly, companies are paid when young people are employed who have difficulties in finding a training vacancy (pupils who are mentally and/or physically handicapped and females). The bonuses are less than the costs of the training expenses. Under certain circumstances, company investments will be financially supported for providing training vacancies.

To increase the number of training vacancies since 1976 another law specifies, if the vacancy offer does not exceed the requests by 12.5 percent, all employers have to pay 0.25 percent of their gross salary, as long as the total gross salary does not exceed 400,000 DM. Out of this sum, the companies will get a bonus for each concluded training contract. These bonuses, too, are less than the training costs. However, this regulation has not yet been put into practice.

Further Training

According to the Vocational Training Act, "further training" shall make it possible to maintain and extend vocational knowledge and proficiency, to adapt workers to new technical developments, and to assist in obtaining promotion. For further vocational training, the law is only a skeleton regulation. Primarily, it leaves the regulation to the chambers as the responsible authorities. The government can set up regulations only where a unification seems to be useful. Increasingly, one can notice the tendency of the government to establish regulations even when there is no substantial need. In fact, the Vocational Training Act allows only examination regulations, but again and again course regulations are attempted. In general, the governmental interference and the attempt to regulate the courses themselves meets the resistance of the economy. These regulations are basically not necessary as they restrict the flexibility necessary for further training.

The sponsorship for further training courses is broadly spread. Further training courses are not only offered by the chambers, but also by associations of employers, trade unions, and by private institutions, as well as public schools. Companies themselves also sponsor the further training.

For vocational further training in the commercial field, the Association of German Chamber of Industry and Commerce has developed a concept which has found universal recognition. Its aim is to formulate educational possibilities necessary for advancement into the middle-management level, and thereby meet the increasing need of qualified specialists. This concept defines vocational qualifications and assesses them by certain examinations. In this connection, it was established that only examinations should be offered for those courses which usually contain at least 200 school hours. Normally, these courses require 500-1,000 school hours.

This concept is based on a completed training and some years of vocational experience. In the future, the possibility should exist to widen vocational knowledge in a special branch (branch of industry) in order to get a middle-management job. The corresponding description of the examination is called "specialized economist" in an appropriate branch, e.g., trade, insurance, industry. The second possibility is to improve the vocational knowledge within the scope of the advanced education in a professional functional field. These examinations are described as accountant, organizer, personnel specialists and financial clerk.

Until now, such a concept did not exist for the technical areas. Here, especially the foreman in the industry, holds a very important position and has since decades, even though the number examined decreased in the last years. But this has been more a result of a certain saturation tendency on the labor market and not just because of the economic situation.

Problems

Problem Concerning the Quantity

Because of the population growth, the number of school graduates looking for a training vacancy in the dual system will increase until 1980. In the last three years, greatly increased rates were registered. In 1977, as compared with 1976, 80,000 more training vacancies were made available. It is still very difficult to expand the offer of training vacancies. The regional differences in the economic structure lead to considerable difficulties regarding the training prospects of youth.

Problem Concerning the Quality

Due to lack of personal and physical requirements, vocational school lessons cannot take place in many professions. As a rule, twelve hours weekly are required according to the acts of the states.

Problems exist in the vocational schools themselves, as well as on the training premises. The realization of the training content essentially depends on the qualification of the training premises. Often, the suitability of the different premises within the training for the same vocational occupation varies considerably.

Problem Concerning the Dualism

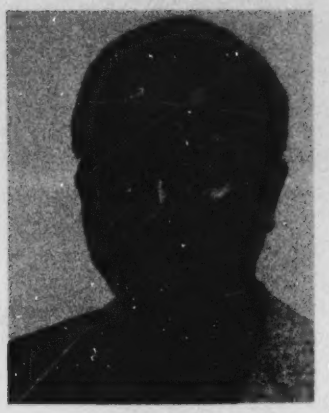
The different competences for the vocational training lead to difficulties, e.g., checking the training regulations which are enacted by the federal government and the competence of the states for the vocational school and the cooperation; for example, the collaboration of the different training places. To abolish this legal dualism would only be possible by changing the constitution which politically cannot be prevailed.

One more difficulty is in terms of the cooperation between the representatives of employers and those of employees. Both groups exercise a strong influence on vocational training which is legally covered by the Vocational Training Act as well as by the Work's Constitution Act. The trade unions have been requested for a long time to abolish the competence of the chambers; for example, for the examination system and the control of training premises and to transfer it to the state (government). A draft act from 1976 intended these alterations but was prevented by the economy.

Problem Concerning the Different Requirements of Vocational Training

Vocational mobility and flexibility of employees are of a special importance today. Vocational training systems must be adaptable. It is in controversy, however, in which manner this could be done. The trade unions claim vocational training in only a few basic occupations while the economy claims vocational training up to a qualified professional activity.

The stronger emphasis for theoretical rather than practical training leads to the fact that many young people who get tired of school do not find a training vacancy. Training for practically talented young people is necessary, and at the same time the requirements in vocational training regulations are so high that many enterprises can no longer fulfill them.



FINLAND

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A General Review of the Finnish Educational System and Its Development Efforts

During the last hundred years, a debate has been going on in Finland--like in the other West European countries--on the reform of the educational system. An indirect reason for this has been provided by the deficiencies and drawbacks that have become evident in the school system on the one hand, and by new social and pedagogical concepts on the other. Reforms have, however, been implemented in our school system only when the social developments have rendered it possible to realize the changes. The character of the school has always been determined by the type of society and in accordance with the will of those exercising authority in it.

We can say that education has, in the last two decades, constituted a major issue in Finnish social policy. The educational system has been subject to a profound reform in Finland during this period.

From the Binary School System to a Comprehensive School

Giving up the binary school system implied an extensive social reform. The binary system divided pupils at the age of twelve after four years of compulsory schooling into two groups; each following its own educational alley. One was the secondary school, opening access to universities and other institutions of higher education, and the other the primary and civic school, opening access to lower practical occupations. By means of the new comprehensive school system that is entirely free of charge to the pupil and maintained by society, it has been possible to guarantee that each social stratum is provided with equal educational services in all parts of the sparsely populated Finland. Earlier, secondary school attendance was, in the majority of cases, dependent on the financial and social status of the parents as well as their place of residence. Thus, the

binary school system in a way contributed to the continuation of the social disparity that earlier dominated society which was divided into estates. Introduction of the homogeneous comprehensive school system, first of all helps to realize social equity and cultural democracy. Today, the principle of equal opportunity for all to the acquisition of knowledge and skills has been widely accepted in our country as one of the fundamental rights of each individual. Moreover, the comprehensive school has been implemented in all parts of Finland. The school is compulsory for the whole age group (seven to sixteen years), and lasts for nine years. The comprehensive school does not provide competence for any occupation; specialization takes place in postcomprehensive vocational education institutions. However, more than 40 percent of the comprehensive school leavers continue their schooling in the three year upper secondary school; which provides basic general education in order to seek entrance to the institutions of higher education; and today in increasing numbers, also to vocational education institutions. The comprehensive schools are owned by municipalities and in the future, the municipalities will be responible for ensuring that the compulsory school leavers access to further studies increases.

Towards a More Homogeneous Planning System and Continuous Overall Development of Education

In Finland, the 1960s was a decade devoted to the planning of the comprehensive school reform and the 1970s a decade for its implementation. Similarly, the 1970s have been devoted to the planning of the reform of post-comprehensive school education, and the 1980s will be a decade for the implementation of this reform. Parliament passed a bill this year (1978) concerning a profound reform of the vocational education system with a view to both its structure and content. In addition to this, drafting of the plans for an overall reform of the adult education system is currently being initiated; thus, educational innovators will obviously be busy still in the 1990s.

We are finally coming to a situation where, for the first time in our history, the educational system as a whole is at the same time subject to reforms and development. There is a good reason to state that if today's plans, which to a great extent exist only on paper, will be implemented. The primary and secondary education systems in Finland will, in

the near future, be really worth the value of an educated society. Only then can the preconditions for implementing lifelong education be created. The principle of lifelong education has been accepted in all the developed countries as the main strategy in educational policy.

Adult Education

I already mentioned that extensive reform plans are being drafted also in the field of adult education. A few months ago, the government of Finland adopted a decision of the principles to be applied to the development of the adult education system. There have been young persons in Finland--and will be for a long time to come--whose basic education is inadequate and who have had no education for occupations. Meanwhile, persons a few years their junior receive much better education lasting until the adult age. This creates educational disparity that is neither regional nor social in the first instance but caused by the timing of the educational policy innovations. Therefore, it is necessary to establish an adult education system that is parallel to secondary education for occupations and will effectively relieve the educational inequality between the various age groups.

The Act Concerning the Development of Secondary Education

In Finland, basic general education provided by the upper secondary school and basic education for occupations are referred to by the common concept "secondary education." In addition to this, the concepts "youth-level education" and "secondary-level education" have been used. As I already mentioned, in the beginning of this year (1978) a law was issued in our country concerning a reform of education for occupations. The law is called the Act Concerning the Development of the Secondary Education System. According to the provisions of the act, education for occupations will be developed in accordance with the principles of the comprehensive school system. The general goal of teaching is to provide the pupil with abilities necessary with a view to the development of society and working life, occupational choice, further studies and versatile development of the pupils' personality; as well as with a view to the promotion of national culture and international cooperation.

The following are considered to be the specific goals of vocational education:

1. Qualitative reform of education for occupations so that education will meet the demands set by the attainment, preservation and extension of occupational competence necessary for the various fields of working life and their development.

2. Measuring the total number of the first-year student places in the vocational education institutions so that all comprehensive and upper secondary school leavers will have access to vocationally differentiated education and, in addition to this, so that a determined number of those who have obtained occupational competence would have access to vocationally differentiated education at the subsequent educational level.

3. Division of the total number of the first-year student places in the vocational education institutions between the various fields and levels of education in accordance with the demands set by the educational needs of society as well as by working life and its development.

4. Improvement of the further education opportunities by arranging vocational studies based on the completed comprehensive school curriculum so that access will be opened to institute-level studies, and further, to university-level studies; and by development of instruction so as to meet the demands set by eligibility for further studies.

Since the development of education or negligence in it has far-reaching consequences for the future life of the individual and society, the amount of resources devoted to educational innovation, experimentation and research should be adequate. Parliament has in the last few years multiplied the amount of the funds to be used for the planning of the reform of the educational system.

Problems Related to the Development of Education for Occupations

Factors to be Taken Into Consideration in the Development of Education for Occupations

Developments in Production Life and Technology. Recently, it has been necessary to give increasing attention to the problems called forth by technology. Most significant of these are the efforts to maintain biological balance, exhaustion of materials, and the restrictions set to the use of energy just to mention a few. Futurologists disagree upon the speed at which changes will take place in the future; whether the strategy of a continuous "scientific and technological revolution" will be followed or whether the developments will level down as a kind of evolution. Mastery of technolgoical development will thus impose new demands on the level of technological knowledge. These demands concern all the levels of education for occupations. Education should keep up with the speed of technological development.

The Development of the Demand for Human Resources. Prognostication of the demand for human resources in the majority of occupational fields in Finland is problematic and the impression suggested by the prognoses is often erroneous. Wrong prognoses are results of inaccurate advanced knowledge of technological developments in each occupational field. For instance, it is hard to estimate how much the demand for human resources will be decreased by automation. The main direction of development in the demand for human resources is known in the case of the basic industries in Finland. But more detailed knowledge of the future developments will be extremely necessary, in particular when decisions are made concerning the number of students to be trained for each occupational field.

Lack of capital is a factor slowing up the speed of technological development in our country. In addition, many factors exercising influence on the changes are out of our control. Of these, the most important are the developments in the prices of energy and raw materials. Thus, it is extremely difficult to estimate the developments in the demand for human resources; however, it should be the basic point of departure for measuring the education for occupations.

Development of the Age Group to be Educated. The Finnish educational system has almost, until the present, been operating in a kind of overheated atmosphere created by the excessive demand for educational services. The number of applicants for postcompulsory education has, as a rule, exceeded the number of available student places. The schools have had the chance of selecting from among applicants those who have been most suitable for the purposes of the school. The greatest problem has been our elaborate selection system. We are now transferring from "the seller's market to the purchaser's market." The decrease in the size of the age group entering postcompulsory schooling is the major reason for this. We will end up with a situation where the schools are compelled to compete for pupils and society has to develop guidance systems helping the young persons, few in number, to enter the various sectors of industrial and social life in a balanced way.

Thus, we should provide a decreasing number of pupils with appropriate education for occupations, although we are not able to accurately forecast the structures of the future production system and the subsequent demand for human resources. In addition, attention has to be given to the fact that the diminishing number of pupils will, in the future, also include also such individuals earlier left outside the schooling system and not particularly suitable for any form of education.

On the Objectives of Education for Occupations

In all circumstances, the objectives of education for occupations can be classified as three major groups (1) Efforts should be made in order to train a good professional person. (2) Efforts should be made in order to provide the trainee with such abilities as will enable progress in the chosen occupation and in eventual further studies. (3) Studies should educate the pupil as a person and as a citizen during the period devoted to schooling and the pupil's well-being and occupational security should be fully provided for.

The Concept "Good Professional Person". One of the major targets of education for occupations in Finland is thus to train a good professional person. Particularly great emphasis has been laid on the fact that the pupil should meet the demands set to a good professional person either immediately after schooling or after some practical occupational experience.

As the public debate concerning the objectives of vocational and technical education has expanded, a clear conflict has emerged between the demands expressed by the various interested groups. The short-term objectives imply that a pupil, right after completed training or as soon as possible would bring the maximum profit by means of occupational competence. In the longer term demands, attention is also given to the opportunities of the individual to make further progress in ones occupation, to ones ability to adjust according to the changes affecting the occupation concerned, and if necessary, to the opportunity of occupational mobility. It has been observed that the demands set by the employing party relate to the short-term objectives whereas the employed party emphasizes the long-term objectives.

After an agreement on the meaning of the concept "a good professional person" has been concluded, there remains the problem related to the equivalence between education and work tasks. No profound occupational analyses have so far been made in our country which would render possible the drafting of appropriate curricula. The practice has been that a group of experts has drafted the curricula on the basis of their personal experience and the teachers have then put these curricula into practice on the basis of the education they have received and their practical experience. Any detailed analysis concerning what should be taught and what could be omitted without hesitation has not been made. Consequently, out-of-date curricula may have passed on from teachers to pupils for decades.

At the moment, it seems that it has not been possible to implement any particularly far-sighted social and educational policies in Finland. The progress has been intermittent and changes fairly haphazard. It has not been possible to forecast the changes in the production methods accurately so that their implications could have been estimated with a view to education for occupations. The only opportunity has been to extend the scope of vocational and technical education so that the pupil would be able to adjust to new circumstances; for instance by means of retraining. Another alternative is the recently launched idea of dividing education into modules. Opinions about this are, however, contradictory. Module teaching may be a good alternative for retraining and updating in particular, but it can hardly substitute the large scale education for occupations provided for youth.

Further Educational Opportunities after Education for Occupations

Eligibility for Higher Education. One of the drawbacks of education for occupations in Finland is its inflexibility and inadjustability to the needs of an individual; for instance, when a pupil would like to change from one school form to another and to pursue further studies in institutions of higher education.

As efforts are being made to open access from vocational education to further studies; main attention is given to the attainment of eligibility for university studies after education for occupations. This is naturally an important issue with a view to increased attraction and appreciation of education for occupations, but according to my opinion, this issue has been exaggerated. Even in the best cases, the institutions of higher education are able to enroll only few percent of vocational and technical students; the maximum being less than 10 percent of all the pupils attending vocational education institutions. The rest of the students will thus be prepared for occupations at the worker and managerial levels. The situation being thus, the eligibility for university studies should not be overemphasized in the drafting of the curricula when in particular this is an obvious contradiction with the occupational goals.

Progress in One's Own Occupational Field. More important than attainment of eligibility for university studies through occupational channels, is the opportunity to attain occupational competence of various levels by means of vocational and technical studies. Today, the situation is to be regretted that in our country, persons with high standard basic schooling who in the majority of cases are matriculated students from the upper secondary schools occupy even those student places in the vocational education institutions to which vocational school leavers should have had first hand access. This situation is also detrimental with a view to education for occupations because it tends to lead pupils to upper secondary schools providing general secondary education which forms an educational short-cut to higher education. Therefore, the student selection systems based on the general education background and emphasizing the level of the previous educational attainments should be substituted by selection procedures based on talents indicated in the occupational field concerned.

Educating a Citizen and a Person. Sometimes, in the context of education for occupations, it has been considered that educating a person and a citizen is primarily in contradiction with the occupational competence objectives. Then it is assumed that education of a citizen is primarily connected with basic general education which should be increased at the expense of education for occupations. This kind of a view is, however, one sided. Greater emphasis in school work can be laid on general educational aspects without bargaining at the expense of the occupational demands and the number of school hours devoted to vocational and technical subjects. The education of a citizen is the objective of the school, and the question as to the approach that has to be taken to do that is a consideration also in the teaching for an occupation. Implementation of this objective is not to any particularly great extent dependent on what subjects are included in the curriculum. Of course, establishment of comprehensive basic lines will provide good points of departure for occupational education objectives. A young person attending a vocational education institution is still in an important developmental phase where the development of one's personality and general well being have to be taken into consideration.

The period of time in vocational education institutions is, for a great number of young persons, the last systematic opportunity to orientate themselves at a larger scale with the leisure time services provided by society. Many occupations imply that their practitioners in the majority of cases, have remote and isolated life cycles. Forestry and agriculture, as well as the occupations related to seafaring, can be mentioned as examples.

Major Issues in the Reform of Education for Occupations

The Present Schooling System as a Point of Departure

Full-Time Study as the Basis for the System. The systems of education for occupations vary a great deal in the different countries of Europe. In many countries, almost the only form of vocational and technical education is the journeyman and apprenticeship system which has passed on by heredity from the old society which was divided into estates. In some countries, more modern forms may have been adopted, but any comprehensive vocational or technical education system based on full-time study has not yet been created. The aim in Finland has been from the very beginning to introduce a full-time vocational and technical

education system which, however, is voluntary. The vocational and technical education system includes full-time training based on apprenticeship contracts where the student works under supervision in a working place that has been agreed upon, simultaneously learning a trade and pursuing theoretical studies in an educational institution. The share of students studying on the apprenticeship contract basis of the total number of students in education for occupations is only about 2 percent. Thus, this is only an alternative for full time pursuit of studies, but it is well suited for certain occupations.

The Various Educational Fields Subjected to Homogeneous Administration. In a universal fashion, the administrative responsibility for vocational and technical education in Finland was until the end of the 1960s divided between various ministries and national boards. The majority of this education was in the hands of a department at the Ministry of Trade and Industry. Only as late as 1968, a specific national board was established for education for occupations, i.e., the National Board of Vocational Education. It was in 1970, transferred from the responsibility of the Ministry of Trade and Industry and subjected to the Ministry of Education. The various fields of vocational and technical education were gradually entrusted to the responsibility of the National Board of Vocational Education so that today, nearly all education for occupations is subjected to its authority. Only the educational systems of the defense forces, fire brigades, the police, post office and telecommunication and of the state railways do not belong to the responsibility of the National Board of Vocational Education.

The National Board of Vocational Education is assigned to direct, supervise and develop education for occupations. Subordinate to the Ministry of Education, it is responsible for administrative tasks related to the implementation of vocational and technical education. The geographical area covered by the National Board of Vocational Education includes all of Finland. At the local level, the educational establishments deal with the issues that belong to their responsibility in accordance with the directives issued by the National Board of Vocational Education. Judging on the basis of the number of employed personnel, the National Board of Vocational Education is a medium-sized national board. Today, the number of personnel is 260.

Development of the administration of vocational and technical education in Finland has been effective and unequalled in all Europe. Only in the neighboring country, Sweden, the development has proceeded further. In Sweden, the responsibility for all the forms and levels of basic general, vocational and technical education has been centralized into one administrative organ.

Main Phases of Planning

In Finland, numerous committees with representatives of the various political parties in proportion to their representation in Parliament have been active and have submitted proposals concerning reorganization of education. The committees have emphasized the following aspects: In education for occupations, the choice of the occupational field must precede the choice of the educational level; education must be divided into extensive sectors and access must be opened to higher education from vocational and technical education. Also, the administration of vocational and technical education should be homogenized.

With a view to the initiation of the planning, the above-mentioned 1974 government decision of principles was decisive. On the basis of this decision, the Ministry of Education appointed in 1974 the total of fourteen committees to innovate the curricula of vocational and technical education. This has been the most extensive curriculum project ever implemented in Finland. The committees completed their work in 1977.

The Major Points of the Reform

In the following, I am going to discuss the major proposals submitted by the curriculum committees, on the basis of which the reform work has already been initiated.

Education for occupations is divided into twenty-eight basic lines of study. These start with a module of general studies lasting for one year during which all pupils receive common instruction in general/basic and vocational or technical subjects. After the year, instruction is differentiated as school-level and institute-level specialization programs. At the school-level, the duration of studies including general studies is two to three years, and at the institute level three to five years.

At the end of his/her studies, the pupil obtains an occupational title. This refers to the examination that the pupil has passed after having completed the specialization program. The occupational titles are defined in broad terms. Thus, the pupil has the opportunity after completed studies to apply for a relatively great variety of occupations and jobs; the intention has been to ensure that his/her occupational mobility is as extensive as possible on the labor market.

The most important principle in the curriculum reform has been to link the various forms of education flexibly with each other and to avoid parallel education. The following can be considered to be the essential aspects of the new educational system:

- Access should be opened from vocational and technical education to higher education.
- A comprehensive school leaver should have access to clearly defined basic lines of study.
- The choice of the pupil's educational career is gradual. After the comprehensive school, the pupil has to know the basic line of study he/she intends to follow. During the general studies module, the occupational structures of society are widely explained to the pupil. This will help him/her make the final choice of occupation. It is only after the module of general studies that the pupil chooses the specialization program he/she prefers.
- Efforts have been made in order to abolish parallelism between various educational phases by giving the pupil the opportunity to transfer from one line of study to another.
- Efforts have also been made in order to establish mutual equivalence between the studies in each study line. All lines of study have in common at least the knowledge and skills that are required from each member of society and that will promote the versatile development of the pupil's personality.

On the Timetable of the Implementation of the School Reform

It is difficult to estimate the period of time needed for the implementation of the vocational and technical education reform. However, the plans should be clear by the end of this decade. The final implementation will be postponed to the 1980s.

The reform requires resources, of which the most important are funds to be set aside for the purposes of education for occupations, teacher resources and school premises. There is competition for financial resources between vocational and technical education, the comprehensive school, adult education and preschool education. Efforts are now being made in the secondary education reform to implement an extensive reform with regard to the educational content, primarily the curricula. This implies the need for effective planning but the implementation of which does not require great investments nor any additional resources that are of significance in our national economy.

Parliamentary will is still needed in the reform of education for occupations. Without the joint effort of all the political parties, the plans will fail. Hopefully we will be able to find the optimum educational alternatives. In all phases, increasing attention should, however, be given to the problems that we will encounter in the near future since the long-term plans should not endanger the educational opportunities of those currently entering or already studying within the educational system.

TRANSLATED FROM THE FINNISH LANGUAGE
by Mrs. Marjatta Nikkanen, Cand. Phil.
Sworn Translator
Authorized by the Ministry of Justice of Finland

DIVISION OF POPULATION OF FINLAND

Figure 1

EDUCATIONAL ADMINISTRATION STRUCTURES IN FINLAND

CENTRAL ADMINISTRATIVE ORGANS

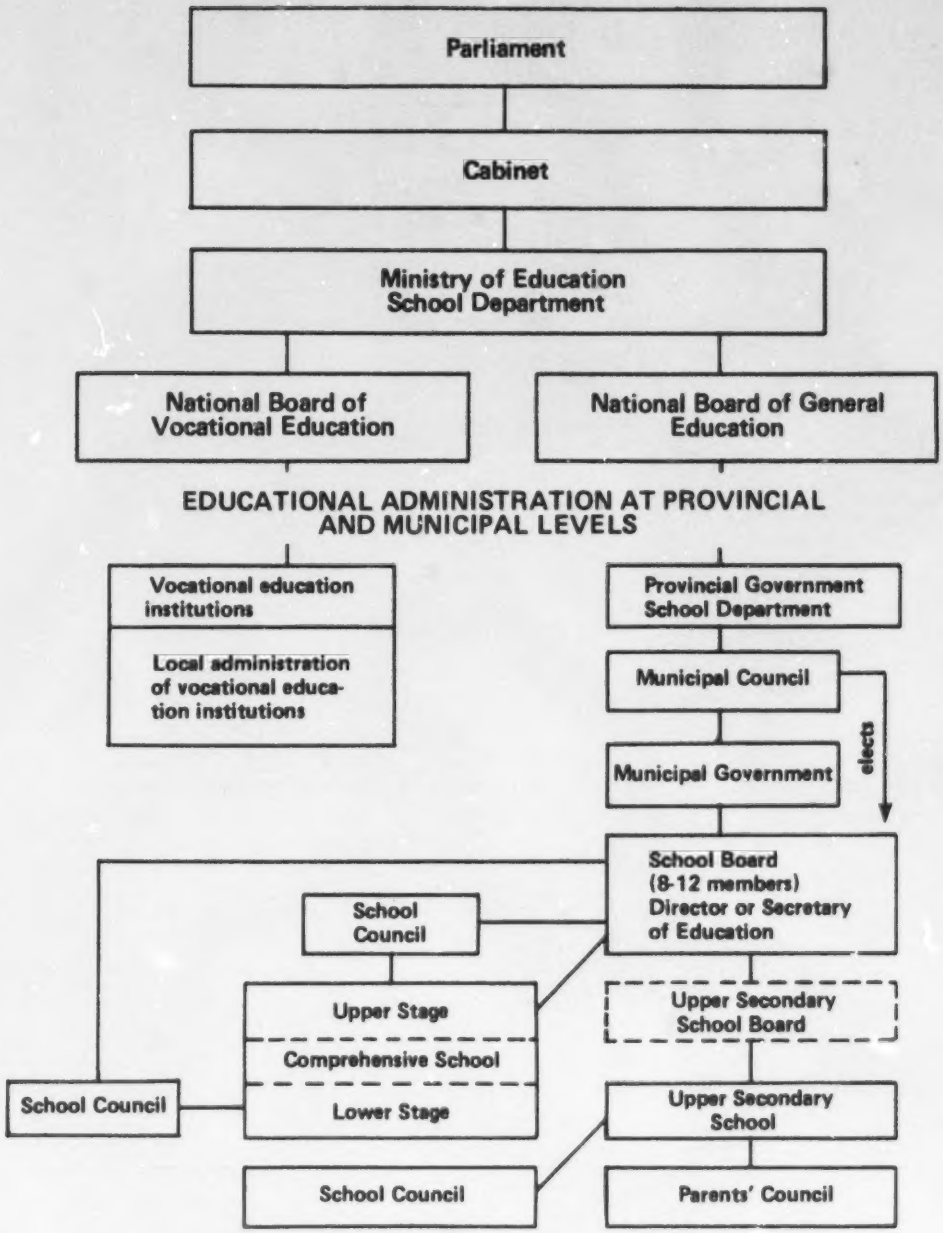


FIGURE 2.

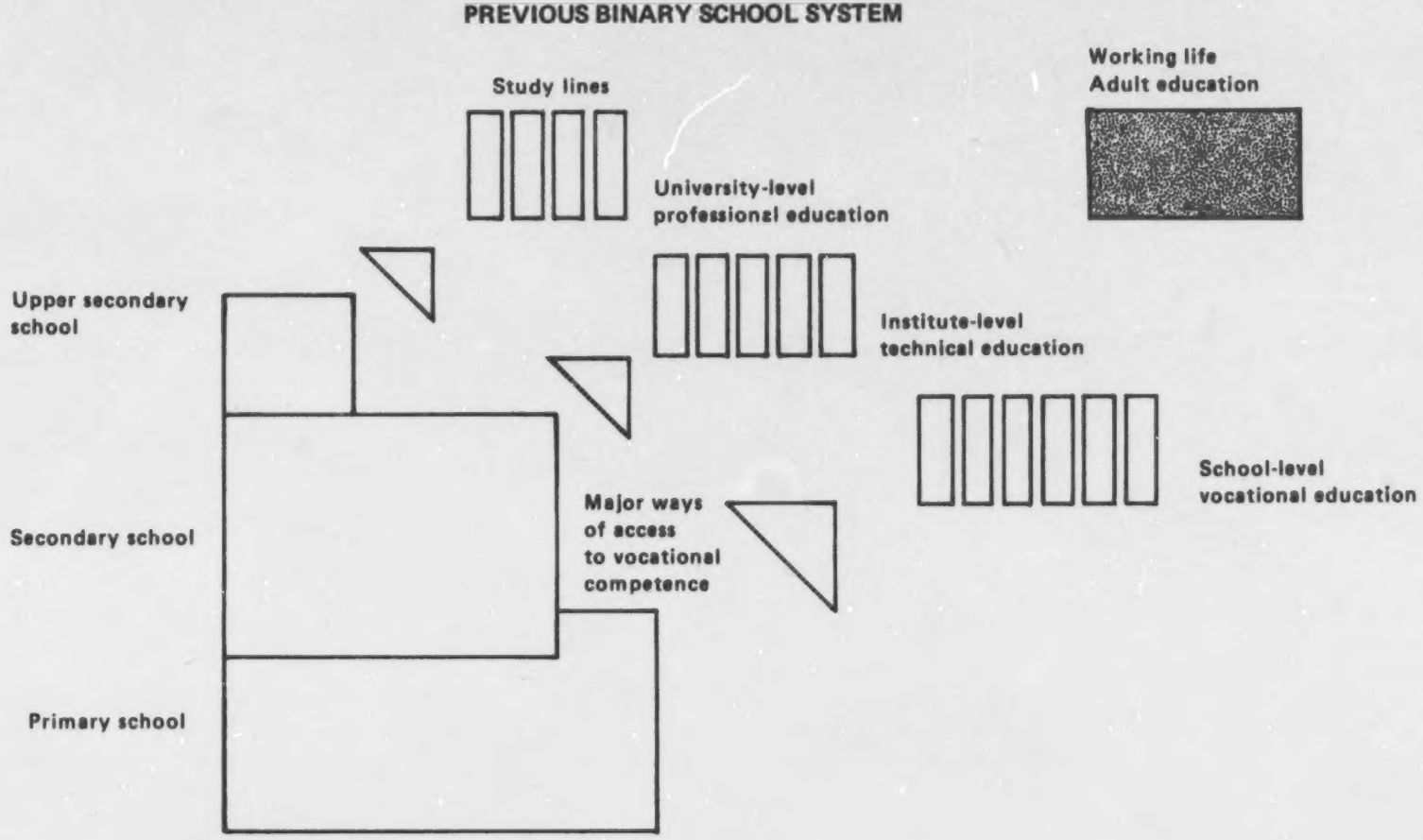

PREVIOUS BINARY SCHOOL SYSTEM
Study lines
Working life
Adult education
University-level
professional education
Upper secondary
school
Institute-level
technical education
School-level
vocational education
Major ways
of access
to vocational
competence
Secondary school
Primary school

Figure 3

NEW COMPREHENSIVE SCHOOL SYSTEM

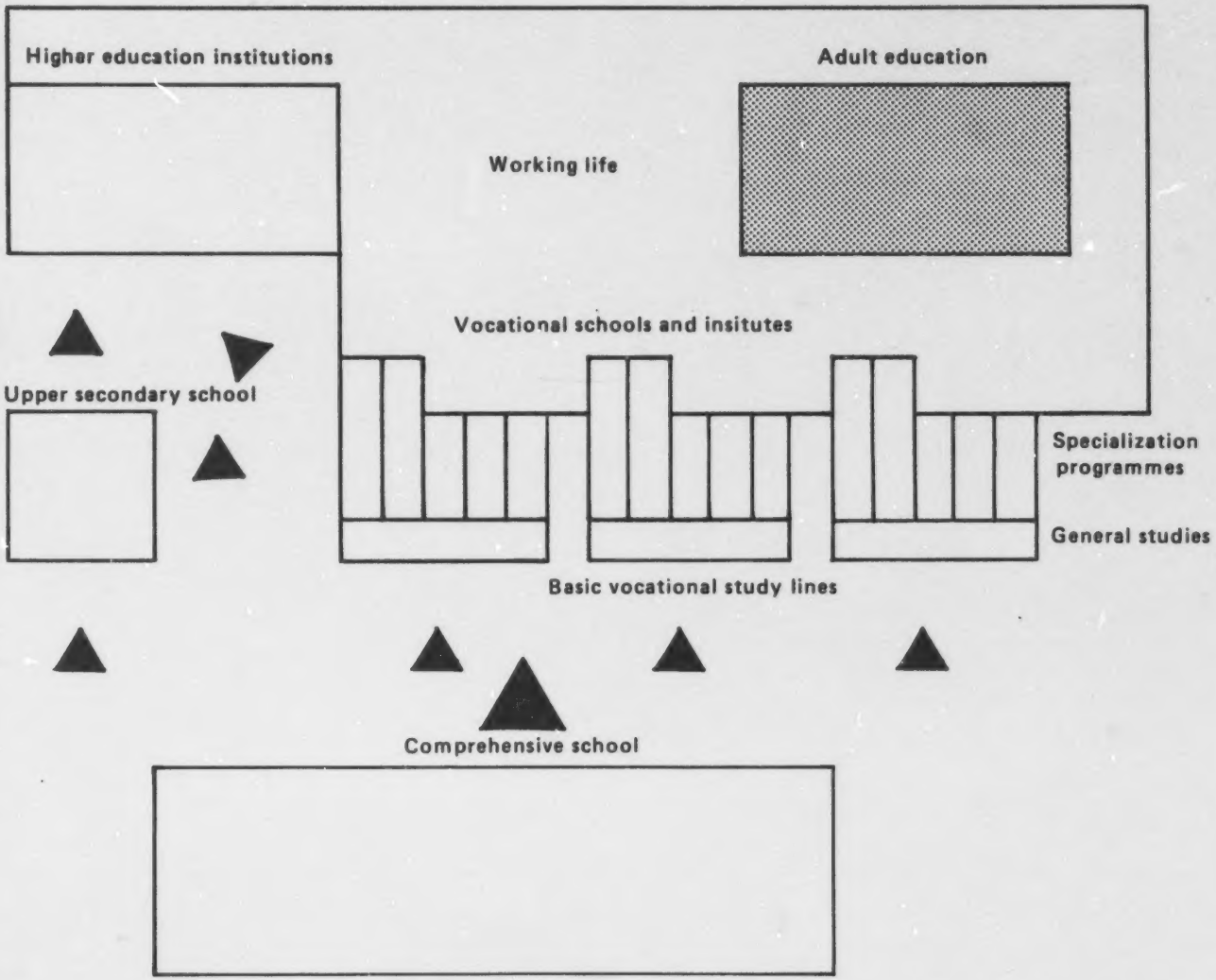
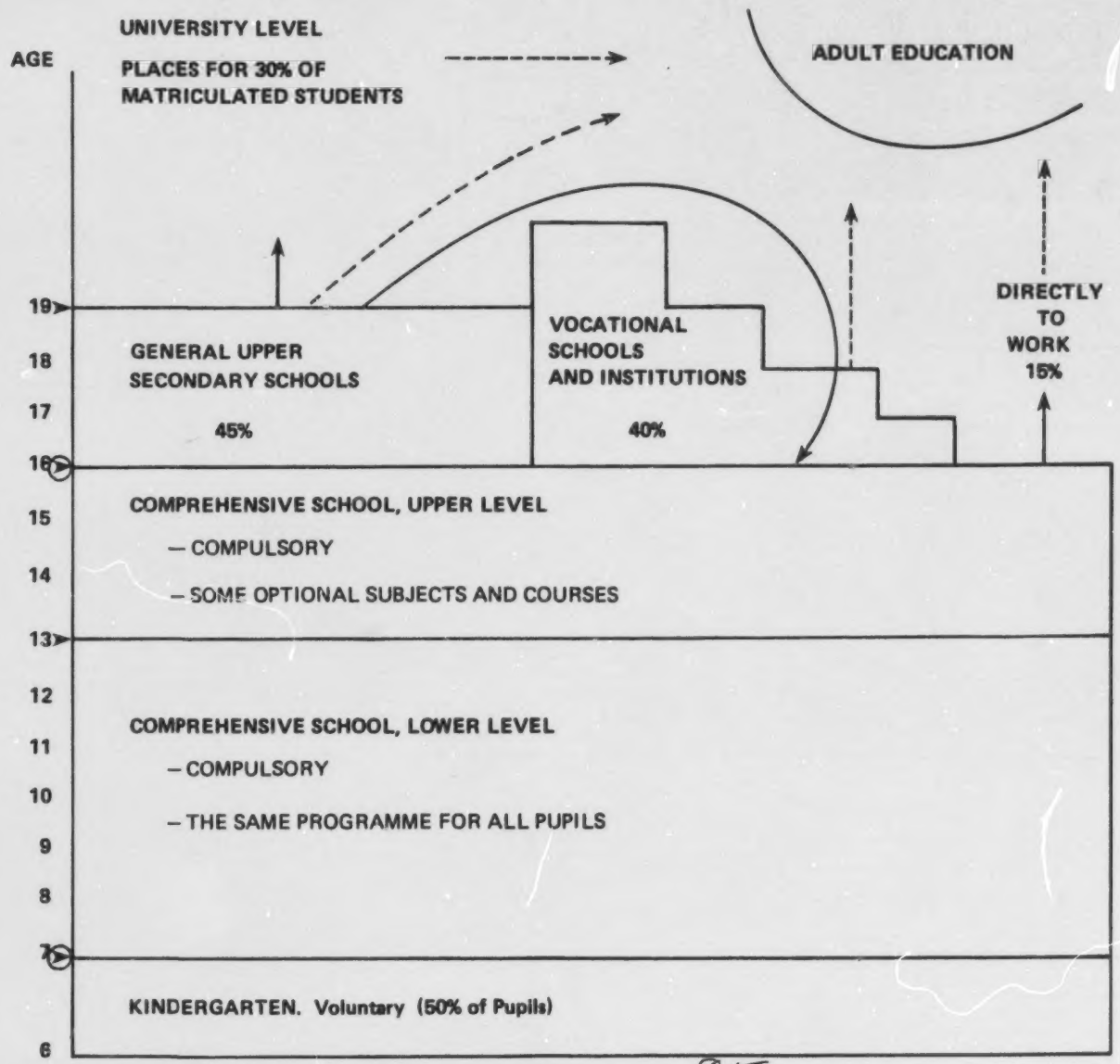


Figure 4

PRESENT EDUCATION SYSTEM



ORGANIZATIONAL CHART OF THE NATIONAL BOARD OF VOCATIONAL EDUCATION

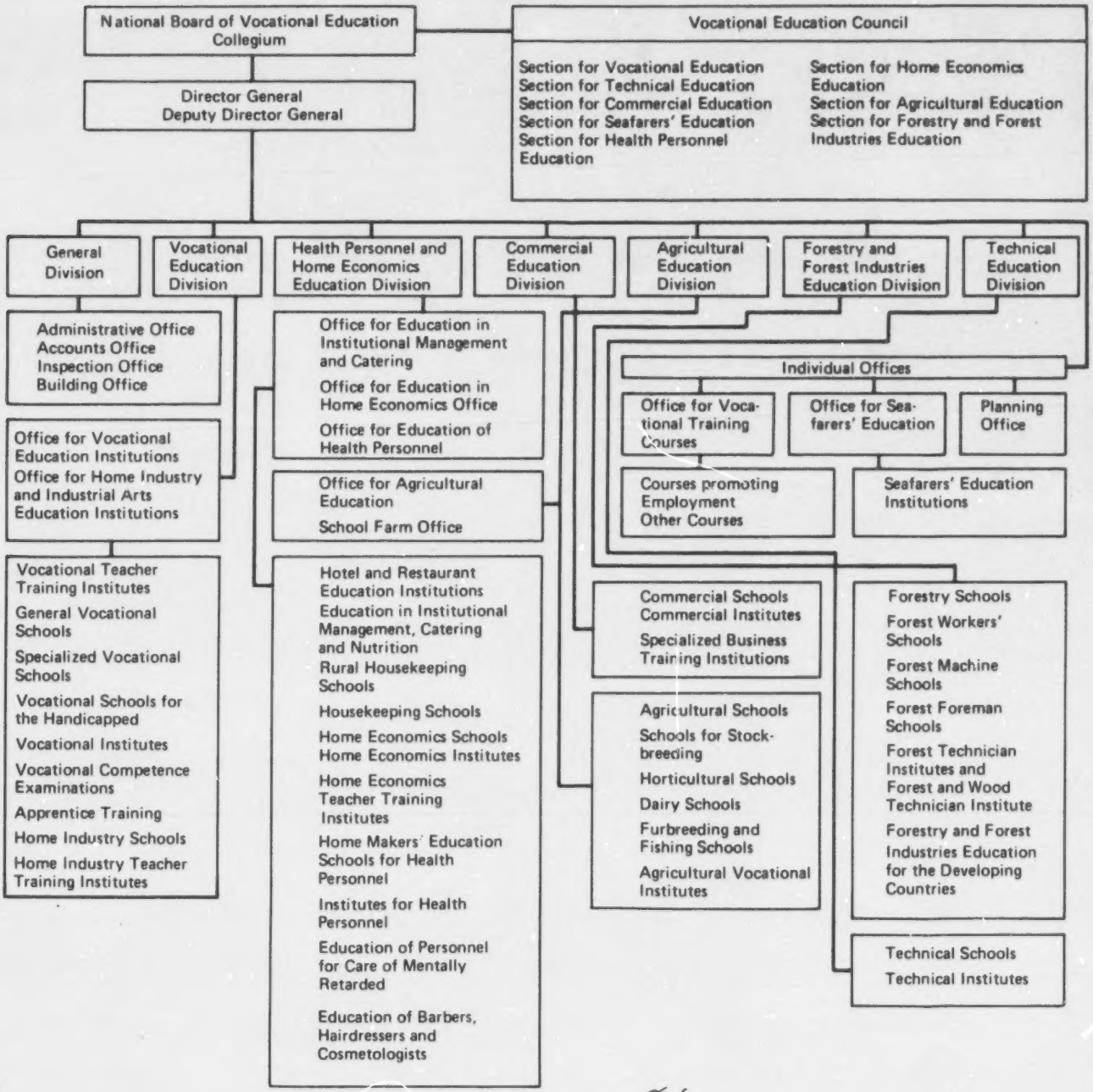


FIGURE 6.

PUPIL ENROLLMENTS AT VOCATIONAL EDUCATION INSTITUTIONS SUBORDINATE TO THE NATIONAL BOARD OF VOCATIONAL EDUCATION

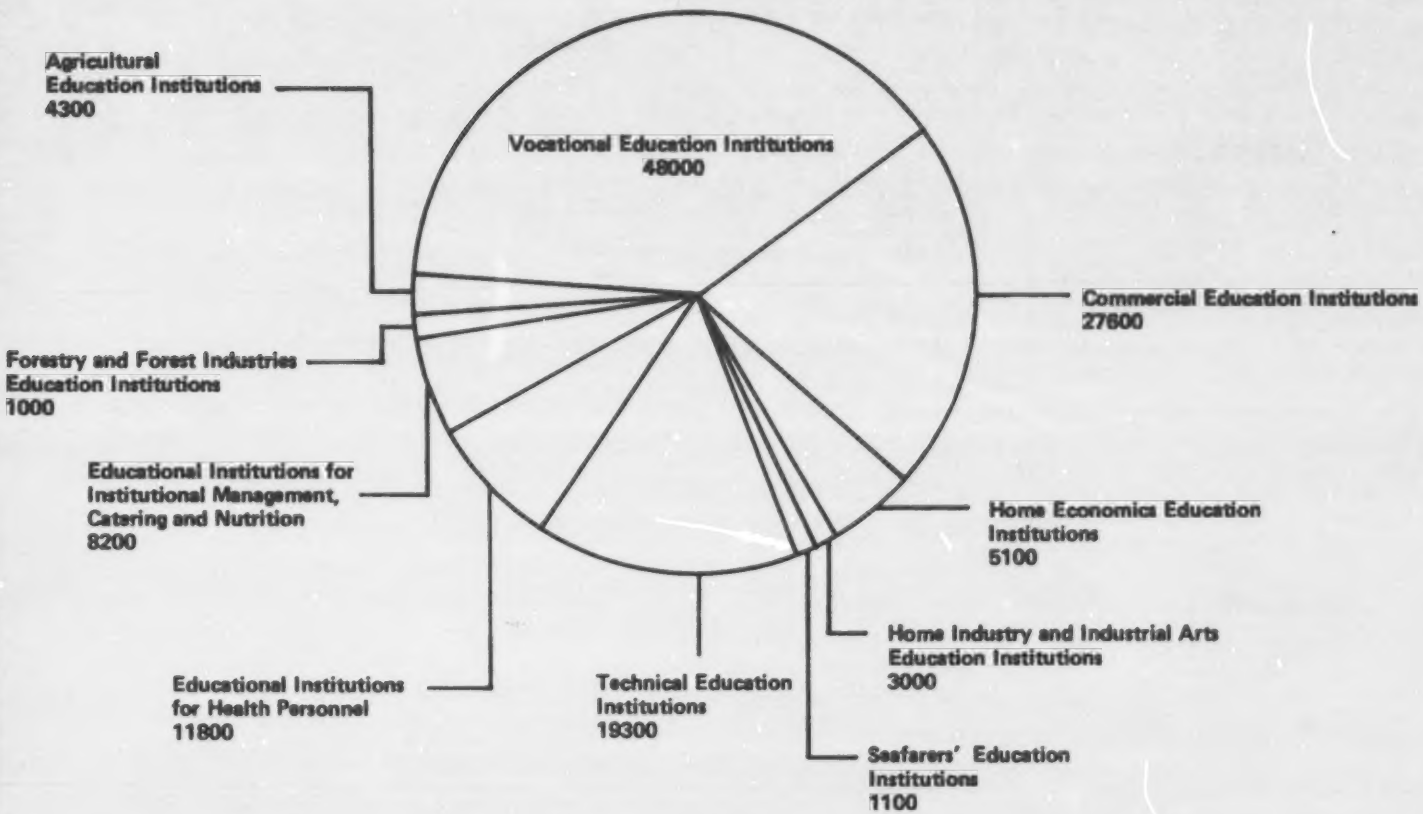

Agricultural Education Institutions 4300
Vocational Education Institutions 48000
Commercial Education Institutions 27600
Forestry and Forest Industries Education Institutions 1000
Educational Institutions for Institutional Management, Catering and Nutrition 8200
Home Economics Education Institutions 5100
Home Industry and Industrial Arts Education Institutions 3000
Educational Institutions for Health Personnel 11800
Technical Education Institutions 19300
Seafarers' Education Institutions 1100

FIGURE 7.

THE NUMBER OF STUDENTS ENROLLED BY PROGRAM AND INSTITUTION

Institution and School Type	Number of Students
Agricultural	5,069
Forest	7,596
Technical	20,149
General Vocational Schools	46,844
Specialized Vocational Schools	5,792
Home Industry Schools	2,869
Seafarers Education Inst.	7,753
Commercial Schools	27,400
Specialized Business Training Institutions	883
Home Economics	4,656
Hotel and Restaurant	7,776
Courses Promoting Employment	29,800
Health Personnel	77,928
Teacher Training	7,274
Total	767,089

FIGURE 8.

OWNERS OF VOCATIONAL SCHOOLS AND INSTITUTIONS

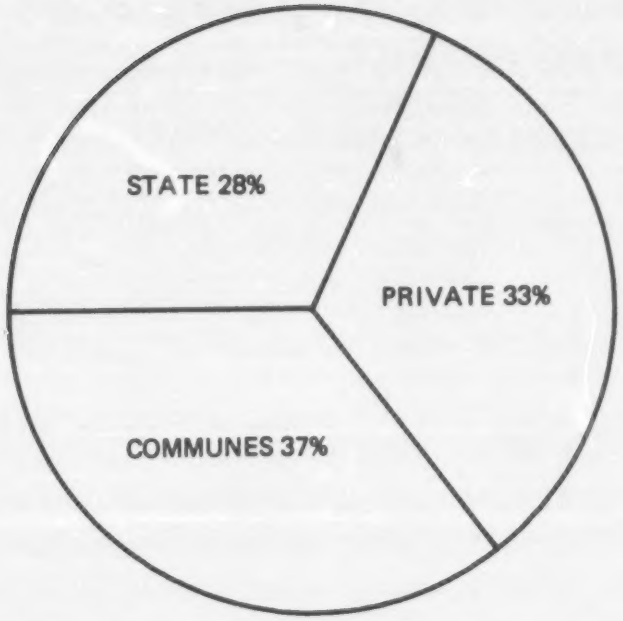


Figure 9

DENMARK

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Introduction

This summary is intended as a general overview of the entire Danish educational system with special emphasis on vocational education.

To anyone employed in education or teaching in general, however, it is a well-known fact that it is extremely difficult to acquaint oneself with the inner workings of institutions other than one's own, be it another university or just the department next door. Some knowledge pertaining to other institutions may be obtained by perusing statistics, statutes, articles, etc. But frequently, one is left with a rather diffuse overall picture insofar as a definite pinpointing of the quintessential influences upon any institution is always a precarious undertaking for an outsider. These influences might tentatively be listed under such headings as: "The inner climate of the institution," "indigenous tradition," "student and teacher attitudes" or "management policies," which means that you are often left without accurate grounds on which to base any reasonable evaluation.

The Danish Educational System

Historical Background

Similar to the case in the other countries of the Western World, the Danish educational system was established and developed in close cooperation with the Church.

The first Danish grammar school, Ribe Katedralskole, was founded in 1145, and the first Danish university, The University of Copenhagen, was founded in 1479.

In the 14th century, the establishment of Board Schools was commenced in a number of towns; these schools were unconnected with the Church and opposed by it. Not until the early 18th century were schools established in the rural areas, and in 1814 school legislation was enacted introducing general compulsory education. This led to the eradication of the last traces of illiteracy.

The present educational system is comparatively new. After a school reform in 1903, the public school system was split up to a primary and a secondary school. After having concluded this secondary stage (junior high school) the pupils could leave the school system at the age of sixteen or seventeen with a degree permitting entrance into a three year grammar school (senior high school). A school reform in 1937 introduced a general prolongation of compulsory education, and at the same time an examination free secondary school consisting of an additional three year module on top of the primary school was introduced.

The principle from 1937 of a division of the primary school pupils in two groups after five years of education (at the age of twelve) was partly abandoned in 1960. In 1975, compulsory education was extended by two additional years so that now the total compulsory education period is nine years in the public school system.

The Danish educational system is almost exclusively financed by public funds and in Appendix I you will find the percentage of the GNP accounted for by the educational system for the period 1935 to 1974.

This also means that the Danish educational system is governed centrally. The educational system rests on legislation passed in the Danish parliament, the Folketinget, and curricula, examination requirements, admittance requirements, etc. are formulated by the Ministry of Education.

In Appendix II you will find a survey of the percentage of the population who have left the educational system with a degree at secondary school level (junior high school), grammar school (senior high school) level or with a university degree, teacher training college degree, etc.

Appendix III is an inventory of the educational background of the Danish population in 1977. Thus, more than half the population (65 percent) today has less than nine years' school education behind it. During the coming fifteen years, this percentage will drop to approximately 40 percent.

The Public School System

As described above, the most recent change in the public school legislation was enacted in 1975. In Appendix IV, the general structure of the public school system is described.

Well over half of all Danish children today start their education at the age of five or six in a nursery school class. At the age of seven, they enter the public school proper in the first class. After this, the school system is undivided up to and including the seventh year after which the eighth, ninth, and tenth classes provide for optional subjects and optional levels. As will be seen from the diagram, compulsory education lasts for a total of nine years, which means that the school leaving age is sixteen.

Classes are taught forty weeks per year, five days a week and approximately thirty hours per week; a little less in the lower classes, a little more in the higher ones.

The following subjects are taught: Danish, writing, arithmetic and mathematics, religious instruction, general orientation (a combination of history, biology and geography), natural sciences (physics and chemistry), English, German, French, sports, singing and music, creative art, needlework, domestic science, woodwork and optional subjects.

Advanced Education

After the ninth or tenth class, pupils leave the public school system at the age of about sixteen. There are then a number of choices:

1. Grammar Schools--(Senior high school), three years duration, concluded by a General Certificate Examination (exam artium). This degree gives the right of admission to universities and institutes of higher education. At grammar school (senior high school), the pupils can make a choice between the following special branches: modern languages, classical languages, civics/languages, music/languages, mathematics/physics, civics/mathematics and natural sciences.

2. Vocational Training--During the last ten to fifteen years, the traditional training in the crafts, industry, trade and agriculture has undergone changes. Previously, training was effected in the following manner: Having left the public school system, the pupil entered into a contractual relationship (apprenticeship) with an enterprise in order to acquire practical training in the trade in question. This practical training was combined with a supplementary theoretical education; first at night school, later at a day school. After four years, the apprentice would receive a certificate proving that he/she had had vocational training.

   Today, this training system has largely been replaced by a system of vocational basic training consisting of a basic year of training at a vocational training school followed by two to three years of training at the school combined with training in practice with an enterprise. Basic vocational training is divided into seven main areas and thus allows a gradual choice of the final vocational training to be made. At the same time, it has been possible to endow the training with a broader selection of general subjects. This was necessary since the establishment of the basic vocational training system was partly caused by criticism of the narrow and highly specialized apprentice training to which the industrial development in Denmark had led.

3. Other Types of Advanced Education--In addition to grammar school (senior high school) and vocational training, a number of educational alternatives are available for both the pupils who have just left the public school system and for the rest of the population. They are for instance, training in semi-skills, supplementary training for skilled workers, retraining, courses in single subjects at grammar school (senior high school) level, folk university courses, series of lectures, vocational courses, etc.

   The total number of participants in adult education was more than one million in 1977. However, the total number of persons involved is somewhat lower since some people participate in several courses at the same time or successively during one year.

4. University Education--Today, Denmark has three universities and two university centers. As mentioned, the oldest one is the University of Copenhagen founded nearly 500 years ago. The second Danish university, the University of Aarhus, has just celebrated its 50th anniversary, the remaining universities and university centers have been established within the last ten years.

   In addition to the five universities, there are a number of Institutes of Higher Education; academically at university level. These cover the following fields of educational activity: engineering, scientific agriculture and forestry, dentistry, pharmacy, commerce, commercial languages, architecture, library science, music, pedagogies.

   Furthermore, there are educational courses for public school teachers; engineering as a supplementary module for a vocational craft; academic education of social workers, hospital therapists and midwives, teachers of domestic science, journalists and officers of the armed forces.

   Throughout the 60s, the intake at grammar schools (senior high schools) has increased heavily, and this has led to a corresponding intake at all institutions of higher education. In 1960, the intake for all types of advanced education was approximately 10,000 whereas in 1976, it was approximately 20,000. The total number of students enrolled at the above-mentioned institutions was 100,000 in 1976. Appendix VIII shows the number of students at universities and institutions with courses at university level.

Conclusion

Generally, the last twenty years has seen an enormous expansion in the Danish educational system and a great differentiation in the educational possibilities. Appendices V and VI illustrate the development that has taken place in the educational level in Denmark over the last forty years.

In 1937, the educational system had a clear and traditional tripartite structure:

- As the foundation, a seven years' public school education for all.
- Public school supplemented by vocational training for approximately one-third of those born in any year.
- Public school supplemented by secondary school (junior high school) concluded by a degree for a relatively small part of the population.
- Grammar school (senior high school) and university education for 3 to 4 percent of those born in any year.

In 1977, the picture is the following: nine years' public school for all, however, 85 percent of those born in any year stay beyond the nine compulsory years. Most remain in the public school system for ten years, and the majority have additional school education for one to four years. Approximately 30 percent of those born in any year aim at a degree at the senior high school level, and a corresponding number go on to short or long academic educations.

Alongside of the increased intake for the "higher preparatory courses" (grammar school-senior high school level) and into the universities, a leveling out of the previously heavily biased recruiting basis for this type of education can, of course, be observed. Appendix VII shows the intake into grammar schools (senior high schools) in 1965 and 1972 analyzed on social distribution with Social Stratum I being the highest and V being the lowest.

Trends in Educational Development

General Background

During recent years, the development in Denmark, and probably in the Western World in general, has created a growing need for cooperation, broader professional qualifications, adaptability, independence and creativity among members of society. At the same time, a desire has made itself felt for greater correlation between education and society, and this has led to an interest in and an analysis of the teaching situation.

During recent years, the development in the Danish educational system has not only been characterized by an enormous extension of the scope of the educational system, but also by an increased interest in teaching methods, the use of technical equipment in the teaching situation, and research concerned with education.

The enormous extension of the scope of the educational system, combined with the above-mentioned interest in greater correlation between education and society, as well as the economic problems which we have had recently have, on the one hand, created a wish for more rational and better planned teaching, and on the other hand, a wish to bring about the best possible teaching atmosphere. As it is generally believed that the quality of the teaching atmosphere depends on the motivation of the students, much recent research has been within this field.

Problem-Oriented Teaching

The purpose of problem oriented teaching is to move away from a teaching situation which aims at one-sided memorizaation of facts towards a teaching situation in which theoretical knowledge is related to its practical use. Students are thus to regard knowledge as a means to solve the problems which form the basis of instruction. Problem-oriented teaching aims at undertanding rather than memorizing. But it is difficult to build up a system of qualified problem-oriented teaching because problems must necessarily be chosen so that the student obtains experience in and insight into the methods and theories of each subject. At the same time, he/she acquires skill in the practical application of these methods and theories. In order to meet this need for a change of teaching methods, the Copenhagen School of Economics, Business Administration and Languages has, for a number of years, used various kinds of

case systems; the case system as such has also been used extensively at Harvard and INSEAD in Paris. During recent years, the case system has been developed further both within the public school and at institutes of higher education. The cases studied are preferably inter-disciplinary, and they thus help cut across the dividing lines between different subjects. As their pedagogic model, some institutions use a teaching method which is based on cases or projects alone; the knowledge which the student gradually acquires of each subject is thus a result of the study of different cases.

Student Control/Group Work

Because of the desire for greater motivation, the teaching situation has seen a change from teacher-controlled teaching to student-controlled teaching. This development is also due to the above-mentioned tendency to work with cases or projects. However, the teacher still has decisive influence on the choice of topics, methods of work, etc. because the responsibility for the students' acquisition of the necessary experience in and insight into the most important methods and theories of the subject still lies with the teacher. Group work is an obvious method of work in the student-controlled case or problem-oriented teaching, and it is accordingly not surprising that this method has become more common in the general education pattern.

Evaluation

The fact that group work has become more common as a teaching method has made it necessary to change exams and other types of evaluation so that they can be used when the group and the work of the group are evaluated. In general, the most important development within the field of evaluation is probably that greater importance is attached to the pedagogic function of the evaluation of the performance of the student. Evaluation should inform each student of his/her level; it should give the teacher a basis for deciding, together with the students, on the best possible continuation of the course. The traditional tendency to use evaluation as a basis for admission, employment screening, etc. has thus to a certain extent been abandoned. Similarly, it is considered less important to evaluate the student's ability to reproduce memorized facts. Books and other aids are allowed to an increasing extent at exams, and as already mentioned, group exams and group performance have

to a certain extent replaced the evaluation of each student. This development may also be due to the realization that traditional school evaluation only says little about whether learning has enabled the student to work sensibly and meaningfully in a realistic occupational situation.

Foundation Courses and Module Structure

In order to secure greater flexibility in case of change of studies or job, some university centers in Denmark have recently introduced the so-called foundation courses, i.e., courses that continue the relatively broad grammar school/ senior high school education in the initial phase of a university education. The choice of majors is thus postponed, and the student gets a better opportunity for assessing his/her own abilities for different university educations.

At the same time there have been attempts to develop courses with a module structure. The aim of this type of course has been to make it easier to change from one type of education to another as well as from one institution to another. It is generally believed that a module structure increases the motivation of the student because this structure gives the student the opportunity for choosing modules that he/she is particularly interested in, or for which he/she has special abilities. However, it can be difficult to create a good social atmosphere at an institution where courses have a module structure; the number of groups each student belongs to will correspond to the choice of modules, and this often means, in actual fact, that he/she belongs to no group at all.

Planning/Technical Equipment

Demands for efficiency and rationalization within the educational system have brought about an increased interest in descriptions of teaching aims and objectives and careful planning of the teaching process. These tendencies have, however, been criticized by many who feel that descriptions of teaching aims and objectives, especially if they are too detailed, freeze the teaching process and afford few opportunities for adjusting it if evaluation should show that such adjustment would be appropriate.

During the last ten years, demands for efficiency and rationalization have also led to an extensive use of technical equipment for teaching purposes. Flipovers, overhead projectors, and flannelgraphs have been added to the traditional blackboard and chalk. Other technical innovations are tape recorders, video recorders, slides, language laboratories and programmed instruction, which occasionally also involve the use of computers (CAI, computer aided instruction).

The purpose of these developments has been to allow each pupil greater freedom to learn at his/her own speed and give him/her the opportunity to check what he/she has learned at regular intervals, and finally to reduce education expenditure by partly replacing the teacher with some new technical equipment.

Comment

Expenditure is a problem for the last mentioned development within the educational system. It is expensive to obtain the necessary equipment, and it is also expensive when considered in terms of time spent by the teachers who are to prepare the new teaching materials. The advantages of such a development are obvious (1) parts of the teaching process can, to a greater extent, be individualized, (2) once a system of programmed instruction has been created, (3) large amounts of elementary knowledge can be made available to the students without involving expenses for teachers' fees, and (4) teachers can concentrate on more advanced education to a higher degree.

At the Copenhagen School of Economics, Business Administration and Languages we have experienced the difficulties involved in attempting to build a system of programmed instruction. We have the technical equipment for teaching involving the use of tape recorders, record players, video recorders, film cameras, projectors, computers, etc., but we have been unable to come to an agreement at the school, as well as with the central government, about the provision of funds for anything but a relatively modest use of the technical equipment which is already there.

Further Education of Teachers at Institutes of Higher Education

General Background

Teachers in Denmark may be roughly divided into three groups (1) Teachers in the public school are educated at teacher training colleges where psychology and educational studies are important subjects. (2) Teachers at grammar schools (senior high school) are educated at the universities where research work forms part of the curriculum. They must pass an examination for a diploma in education before taking up permanent employment as teachers. (3) Teachers at institutions of higher education are also educated at the universities, but they are not required to have any formalized educational qualifications. When an institute of higher education employs a teacher, it practically only considers the quality of his/her research work. It was not until 1973 that the educational qualifications of the applicants were taken into consideration; this still happens only rarely when (full) professors are to be employed.

All full-time teachers in higher education are obliged to teach, to carry out research, and to take part in the administration of their institute. The average distribution of the time they are required to work should be 50 percent to teaching, 40 percent to research and 10 percent to administration.

The Administration of Higher Education

To understand a specific development of a practice or activitiy within an educational system, it is imperative that one possess some knowledge of the organizational framework peculiar to that particular practice.

As mentioned above, universities and other institutes of higher education in Denmark are all government institutions administered by the Ministry of Education.

Normally, preparation for the final examination within higher education requires from five to seven years of study. The entrance examination for institutions of higher education is the Danish "Exam Artium" or an equivalent examination.

University studies normally lead to a "Candidate's Degree." The academic titles are Latin abbreviations as e.g., "Cand. Med." (Candidatus/a medicinae), and "Cand. Mag." (Candidatus/a magisterii). In addition to these degrees mainly designed to qualify graduates for specific jobs as physicians, teachers, etc., there are three categories of research degrees in higher education: the "magister" degree the "licentiate" degree and the "doctors" degree.

The institutions of higher education enjoy a wide degree of autonomy. The total amount of money at the disposal of each university is provided for in the budget, but the allocation of these funds within the universities is, to a large extent, left to the governing bodies of the institutions in question.

The institutions are governed by the Act on Administration of Institutions of Higher Education, an act based on the principle of an equal say for all involved, and this includes all teachers, all students, and all technical/ administrative staff.

The Act on Administration of Institutions of Higher Education dates from 1973. It brought a radical departure from the structure which had hitherto left formal decisions on all matters affecting the institutions as a whole in the hands of those professors with full professorship.

This act was one of the results ensuing from the extensive debate on problems of higher education that took place in Denmark from the mid-sixties to the beginning of the seventies.

The management of each institution is carried out by the Vice-Chancellor (Danish: "Rektor") in collaboration with the central governing body (the "Konsistorium"), the Faculty Boards, Institute Boards and Study Boards.

The Vice-Chancellor and the Deputy Chancellor are elected for two-year and three-year terms respectively. Eligible are the professors and associate professors (senior lecturers) of the institution.

The Konsistorium is the sovereign collegiate committee of the institution and rules on all matters concerning the institution as a whole. The Konsistorium at the Copenhagen School of Economics, Business Administration and Modern Languages numbers twenty-one; twelve teachers (including the Vice-Chancellor, the Deputy Chancellor and the two Deans of the Faculties), six students and three technical/ administrative staffers.

Education and research take place within main departments or faculties; the administration of which comes under the Faculty Board, elected according to principles similar to those of the Konsistorium. Each faculty comprises a number of Institutes with each representing a specific subject and research field. The institutes are directed by Institute Boards.

The Study Board consists of an equal number of teachers and students, ten members in all. The members are elected by and among the teachers and the students, within the appropriate subject area. The Study Board rules on matters regarding the content of courses, organization of instruction and examinations, appointment of assistant lecturers, In addition, it has a say on the appointment of tenures (professorships, lectureships) and in judging the educational qualifications of applicants to such posts.

The First Educational Courses for Teachers at the Universities

During the last twenty-five to thirty years, Denmark has developed from an agricultural society to a modern industrial society. Especially during the sixties, this development raised the standards of living considerably and resulted in enormous expansion within the field of education.

It was generally accepted that the development of modern industrial society called for extensive changes in the qualifications of the labor force insofar as the industrial development of a country must go hand in hand with educational development.

The old structures, however, were not easily moved. At times, it seemed nearly impossible to change anything in the old system of higher education--even to the planning committees appointed by the Ministry of Education (as early as 1962).

Not until the end of the sixties, when the verbal skirmishes between the universities and their students culminated in open violence and revolt did the barriers collapse. The time had come for a different kind of innovation.

In 1966, a group of teachers at the Technical University decided to arrange a course under the heading "University Teaching." The teaching staff at this course mainly came from the Royal Danish School of Educational Studies from which they either taught or had graduated. This meant that all had done research in either psychology or educational studies. The subjects dealt with in this course were learning psychology, instructional planning, teaching methods and audiovisual media.

In the years that followed, this course model was emulated by the Copenhagen School of Economics, Business Administration and Modern Languages, by the Dental Colleges in Copenhagen and Arhus; and by Arhus University. The course intensity was rather modest--a maximum of a couple of courses a year at each institution. Roughly, the same teaching staff was used at each institution, although soon it was thought wise to include one or two scientific experts within the institution in question in the group of course teachers.

Present Course Activity

After a very modest start and a short interval of increased activity, these courses at the Copenhagen School of Economics, Business Administration and Modern Languages have not been reduced to a rather modest level.

This state of affairs corresponds regrettably well to the state of affairs at other institutions of higher education. The University of Copenhagen is the only institution that has set up an institute for Studies in Higher Education. The activities of this institute have also been reduced, but the number of courses arranged by this institute vastly outnumber other institutions in this respect.

The pedagogical courses offered to teachers at practically all institutions of higher education consist of a basic course supplemented with a superstructure of special courses.

The basic courses in higher education focus on aims and objectives, instructional planning, learning psychology, audiovisual media, teaching methods, and evaluaton. The basic course is usually offered to specific institutes or faculties (participants with common background). Special courses concentrate on one special subject, such as: aims and objectives, curriculum construction, evaluation, group teaching methods, etc.

Future Course Activities for Teachers at Institutions of Higher Education

With the exception of the University of Copenhagen which, as mentioned above, has set up an Institute for Studies in Higher Education, the governing body at the various other institutions appoints a didactic committee usually for a one year period. This committee arranges courses for teachers at the institution in question. However, the committee members have neither the time nor the money needed for in-depth study of the specific problems related to courses of this kind, and the lack of continuity of the work of such committees is often obvious. Not surprisingly, this makes it difficult to maintain an interest in these courses among teachers, leading to dismissal or oblivion for most of these didactic committees.

At the Dental College in Copenhagen and Arhus and at the Copenhagen School of Economics, Business Administration and Modern Languages there are departments with teaching tasks similar to those of the Institute for Studies in Higher Education. These departments are obliged to do research and teach in other subjects as well, but they may offer one or two basic courses in teacher education every year, in addition to occasional special courses. They also try to develop new educational courses.

Another reason why interest has declined among teachers may be that university teachers are unlikely to perceive any discrepancies in their teaching performances and thus do not experience a need to improve it. Although teaching is a major activity, it is not of major concern. The teacher's domain for excellence and competence is research. Therefore, research is also the field where university teachers feel they must legitimize their membership in the organization.

The original idea and goal behind pedagogical courses were to make the entire educational institution better by making the individual teachers better. Participants generally rated these courses favorably, but when the teachers returned to their respective departments, the value of what they had learned often seemed rather limited. What appeared to satisfy the individual teacher's needs did not always prove beneficial for the organization as a whole.

In recent years, Denmark has had economic problems just like all other countries in the Western World, and these problems have resulted in a reduction of the expenditure on education. Thus, there has been only a modest increase in the number of permanent posts for teachers at institutions of higher education.

At the same time, the enormous expansion within the field of education has led to an increase in the number of potential univeristy teachers. For young teachers especially, it is still research which is important for a career at the universities and other institutions of higher education. It can be difficult for these teachers to find time to participate in pedagogical courses.

If institutes of higher education wish to further the interest in pedagogical development, they must:

1. Allocate reasonable funds for pedagogical development and training

2. Attach greater importance to pedagogical aspects of university teaching

3. Realize that the teacher has a double function as educator and researcher

4. Accept that somebody at the institution in question must be responsible for training the teachers of that institution.

Furthermore, the group responsible for the training programs should realize that university teachers often approach educational problems from the point of view of research (i.e., viewing educational problems systematically similar to the way scientific problems are treated). It means that the group of people with the responsibility for the teacher training program should be able to work as consultants at the service of teachers and other parties trying to solve educational problems at the institution in question.

Changing any practice within an organization which, in addition is governed by democratic ideas in all other questions, must involve several parties. In the case of education, teachers, students and administration should participate.

Appendix I.

PUBLIC EXPENDITURE

Year	GNP%
1935	2.3
1957	2.8
1967	5.5
1968	5.8
1969	6.1
1970	6.5
1971	7.1
1972	7.3
1973	7.2
1974	7.5

Public expenditure on education in percent of the gross national product.

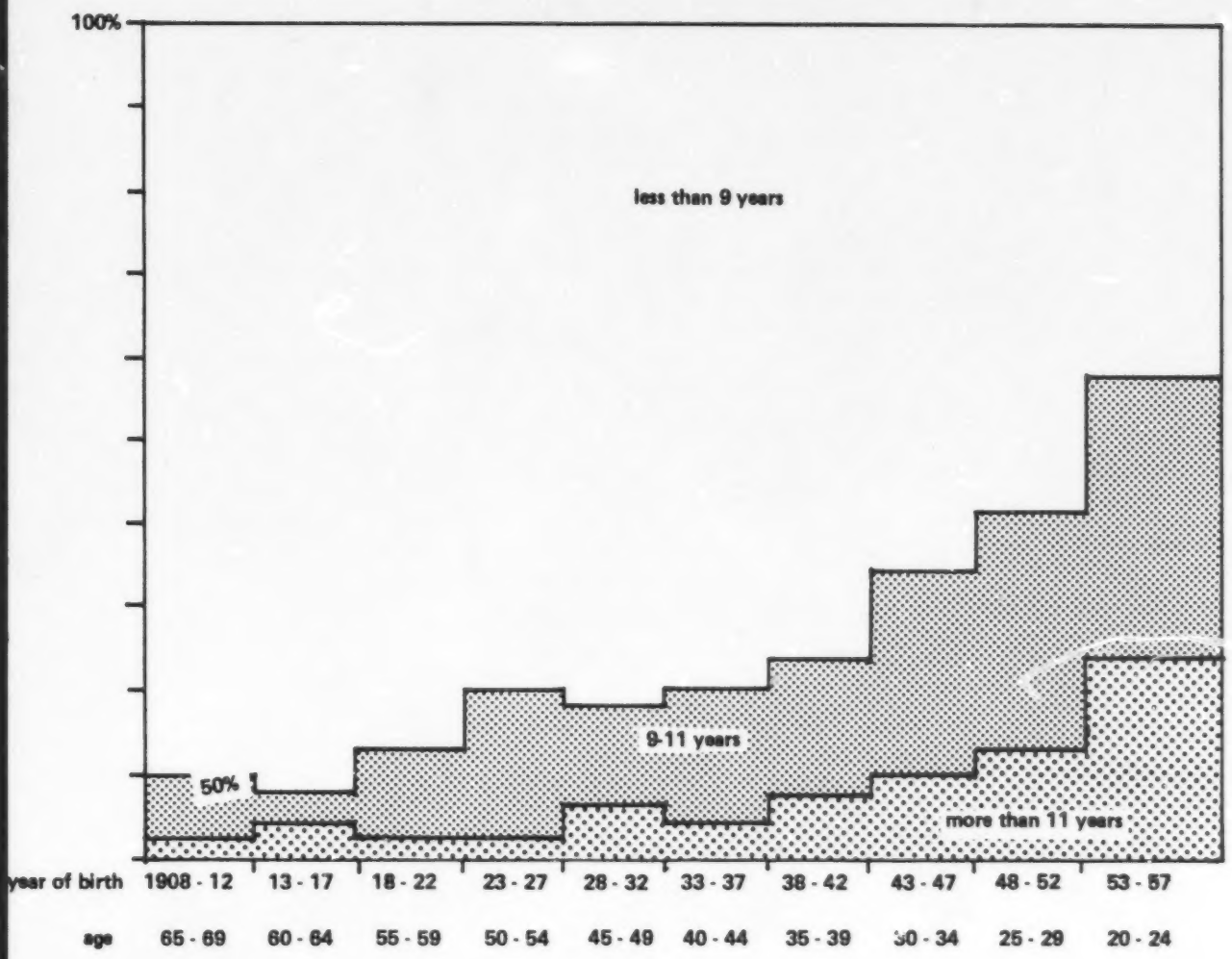
Appendix II.

POPULATION WITH SCHOOL DEGREES

Year	Secondary school / junior high school	Grammar school / senior high school and higher prep. courses	Universities or other institutes of higher education
	%	%	%
1901	3	1	2
1911	5	2	2
1921	6	2	2
1930	7	3	3
1940	12	3	4
1950	15	5	5
1960	25	7	7
1970	33	18	12
1975	40	25	16

A survey of the percentage of the population who have left the educational system with a degree.

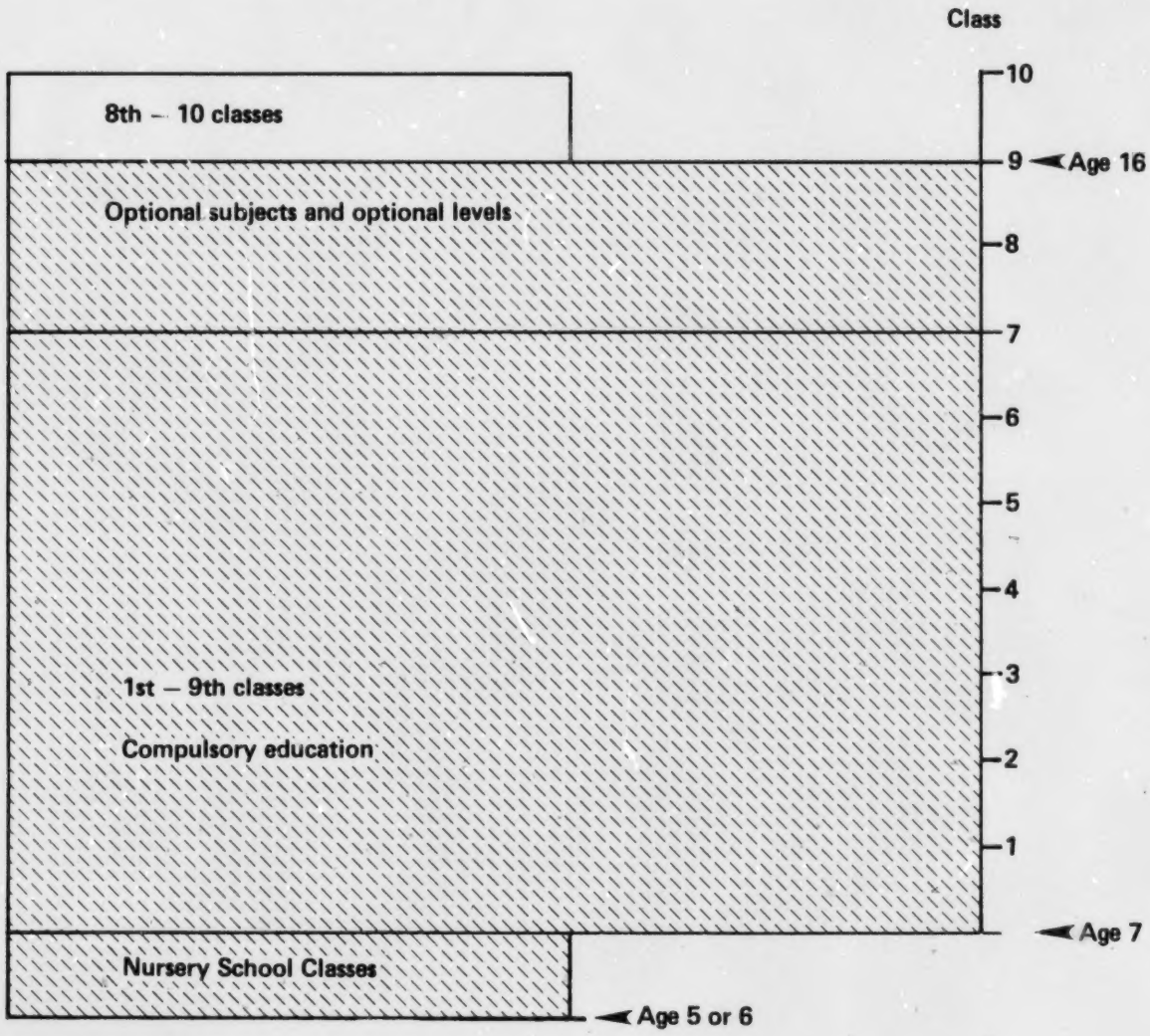
EDUCATIONAL BACKGROUND BY AGE



An estimate of the educational background of the population in 1977. The large white area in the figure shows that more than half (i.e. about 65%) of the adult population has less than nine years school education. The picture will look different in 1990. The bars on the right will be hatched completely, whereas the low bars on the left will be disappearing from the chart. However, 40% of the population will still have less than nine years' school education.

Appendix IV

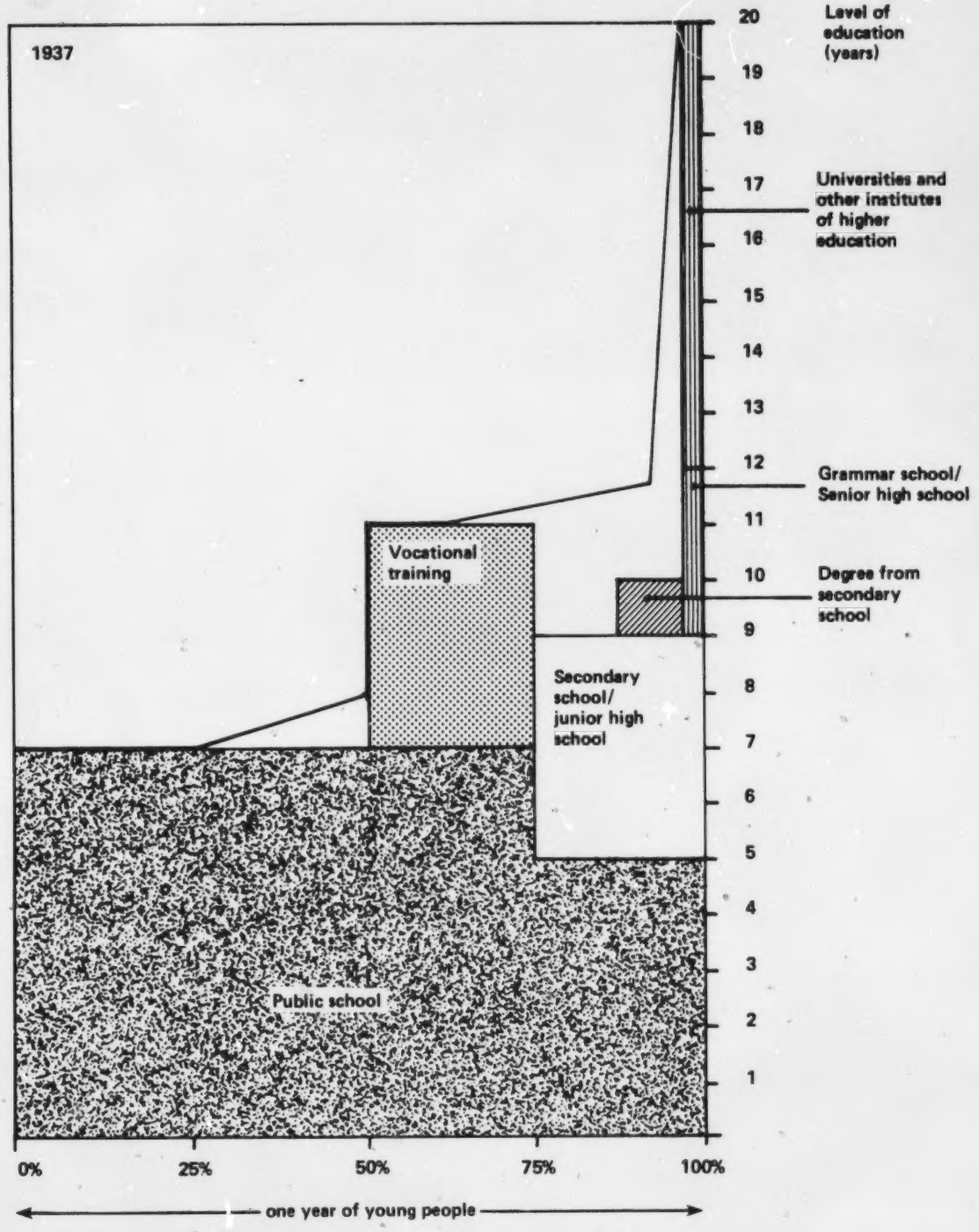
1975 PUBLIC SCHOOL SYSTEM STRUCTURE



The structure of the public school system after the Education Act of 1975.

Appendix V

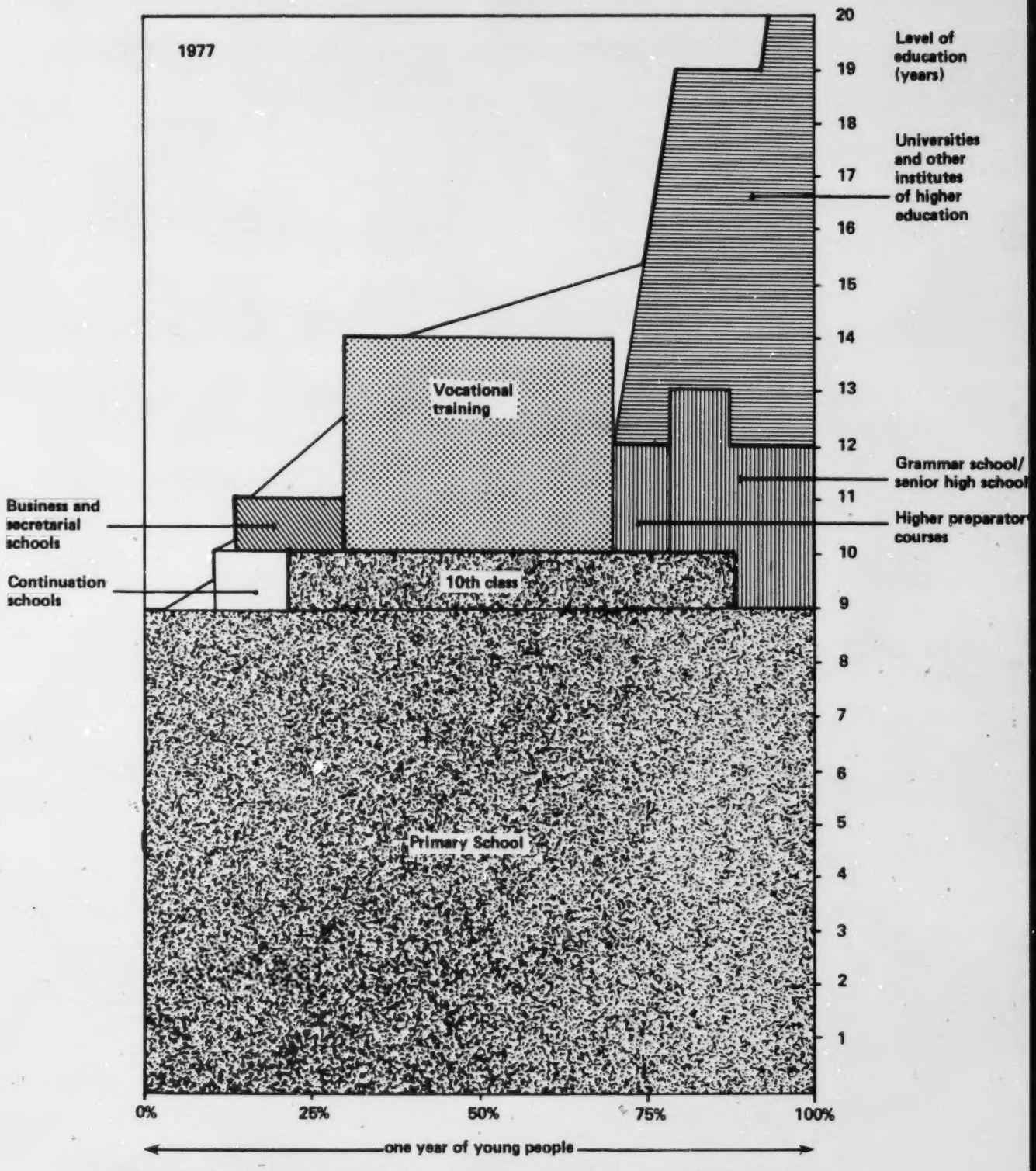
1937 PUBLIC SCHOOL SYSTEM



The educational pyramid 1937. Only a very small part of the population received an education at universities or other institutes of higher education. The majority of the population had only two options; they could either receive a vocational training or leave the educational system for good after seven years. The group - on the left - exceeded 50% of the young people of a particular year.

Appendix VI

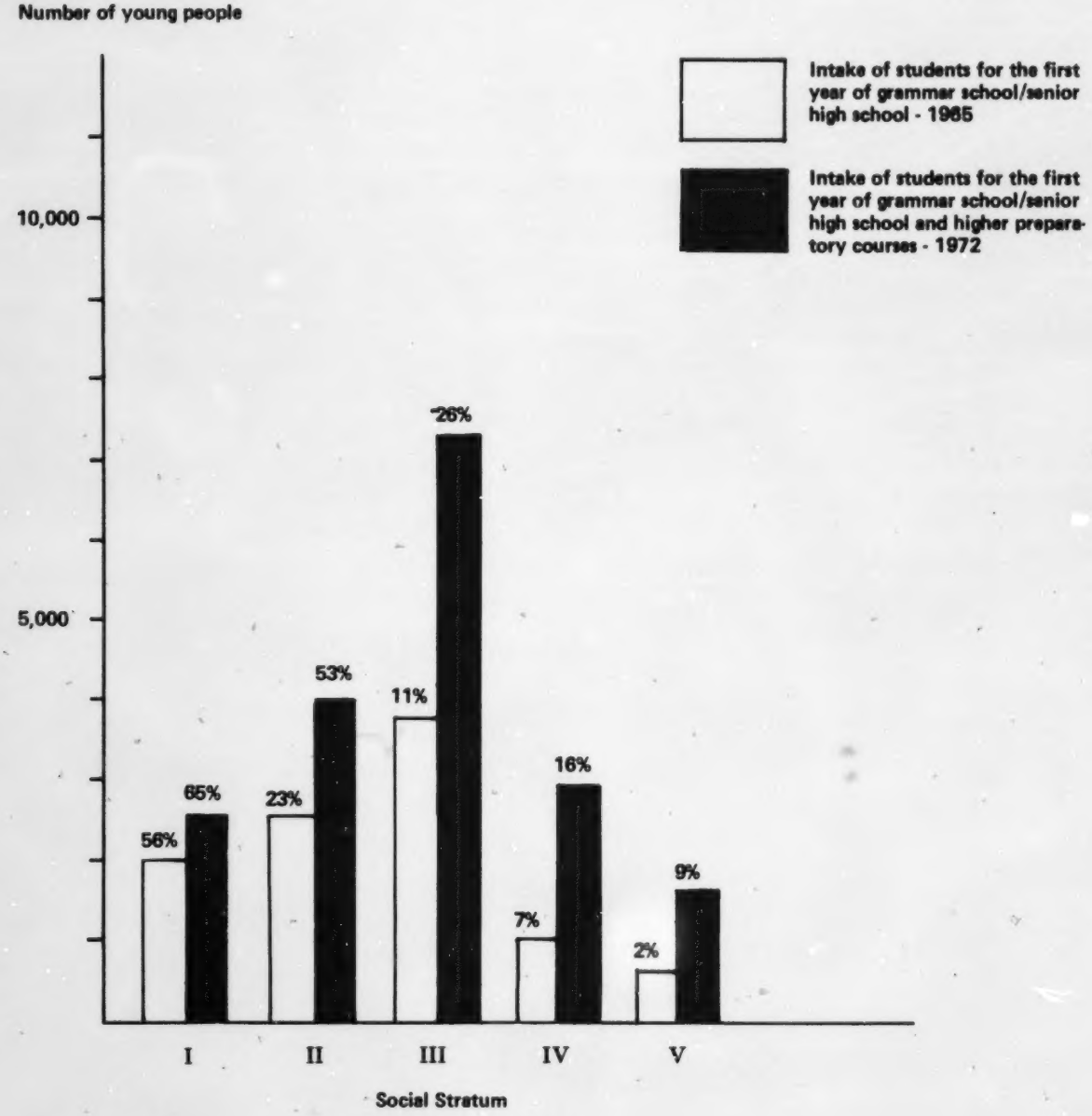
1977 PUBLIC SCHOOL SYSTEM



The 1977 educational pyramid. The picture has changed drastically since 1937. Today there are more opportunities within the educational system. However, there is still a group which leaves the educational system after the compulsory nine years (see left part of the chart).

Appendix VII

1965 AND 1972 STUDENT ENROLLMENT BASED ON PARENTS SOCIAL STRATUM



Students at grammar school/secondary high school and higher preparatory courses classified according to the social stratum of the parents in 1965 and in 1972. The figures above each bar indicate how large a part of the social stratum in question the bar represents.

Appendix VIII.

STUDENTS AND FACULTY IN HIGHER EDUCATION

Number of students and teaching staff (full time) at institutions of higher education, 1st October, 1975. (Statistisk Arbog)

INSTITUTION	STUDENTS	FULL-PROFESSORSHIPS	ASSISTANT & ASSOC. PROF.
University of Copenhagen	28286	234	1143
University of Arhus	15125	113	633
University of Odense	3838	36	160
Alborg University Centre	2158	35	225
Roskilde University Centre	1454	29	91
Technical University of Denmark	3355	76	419
Academic School of Engineers in Copenhagen	1084	23	141
Royal Veterinary and Agric. College	1536	57	199
Dental College of Copenhagen	933	12	41
Dental College of Arhus	543	11	30
Danish School of Pharmacy	681	10	58
The Copenhagen School of Economy & Busin. Adm.	6767	41	145
Arhus School of Economy & Busin. Adm.	2894	22	86
The Royal Danish School of Educational Studies	1437		
Total	70091	699	3371

UNITED STATES OF AMERICA

Daniel Dunham, Deputy Commissioner
Occupational and Adult Education
U.S. Office of Education
Washington, D.C.

My remarks tonight are aimed at our five or six colleagues from our visiting countries. If they are redundant for those of you who are among the group of vocational educators and others here tonight, then I make no apology but I use the opportunity to reinforce our position and our history and our future for the purpose of reinforcement in terms of setting a tone, which perhaps should lead us to the exploration of some collaborative efforts among those five countries and the other twenty of the Organization for Economic and Cooperative Development which sponsored a conference this last week on "Working Life and Education," or "Education and Its Role in Working Life."

I was delighted to meet the five ministers of your countries and I should say to you that along with the Commissioner of Education from the United States they were among the stars of the show. There seemed to be particular points of contact and mutual interest, especially with England, Sweden, and Denmark as well as in many ways with Finland and West Germany, with the comments that Dr. Ernest Boyer, our commissioner, had to bring to the conference. Very stimulating and very encouraging opportunity for mutual sharing, even within the protocol situation that seems to influence such international events, there was candor, there was exchange, and there was question. And I think those questions and that candor give rise to the hope that among the free nations of this world we have an opportunity and hope and foresight for some mutual resolutions of some of the pervading questions and problems facing vocational education, economic and cultural development, and a host of other issues with which we each must be concerned.

I want to share with you tonight, some of the points of a paper we presented and which was written by our bureau, particularly by myself and one other staff member within the last week in preparation for the Paris conference which is entitled "The American Experience in Education and Working Life: A Statement on History, Policy, and Future Issues."

And when you return to your homes in Copenhagen, in London, et al., I hope that you will find this paper in its full context and respond to it in appropriate ways to our office and to the office of our commissioner with your own perceptions and your own incisive ideas about some of the issues upon which we might not only engage in dialogue in the future but on which we might enter into some collaborative arrangements for resolution.

Historical Perspective

I share this with you with some degree of pride, because I think it really does represent in a very brief sort of summary way, two or three pieces of the American scene with respect to education and working life in this country: the historical context, policy issues, the impact of vocational education in this country, and some ideas of the future. There are really two issues: the impact issue and the history perspective. And finally, I want to share with you this evening eight initiatives which represent perhaps not new vision or new insight with respect to the future of education and particularly vocational education in the United States of America but they, at the very least, represent energy, and enthusiasm for what lies ahead of us to the year 2000. I pick the year 2000 for very arbitrary reasons--that happens to be the year I intend to retire. I will be sixty-four years old that year. I don't know what other reason there might be except many of the statistics of demography, of economic, and of social significance seem to be pointing us to look ahead a few years, a few years beyond our noses and with some insight into the trees of the many forests that make up the concerns with which we must each deal.

All powers not expressly delegated to the federal government by the Constitution of the United States are reserved for the states--the fifty states. Education, one of those unspecified powers, is the responsibility of the several states. It remains, however, a function of the local community and the concern of the federal government. Now that is not my statement, that is the statement of one of our chief state school officers which Dr. Shoemaker will recall was delivered by Dr. John Porter, the chief from the state of Michigan, who stated in fact that education is the responsibility of the state, the function of the local government, and the concern of the federal government. Contrary to many of your experiences, education in the United States is a highly decentralized function.

Through the years, the federal role in education has come to be more sharply defined as that of catalyst. And I speak to you from a federal perspective because perhaps from that viewpoint, I can help to fill in some of the spaces in the experiences that you had in the past week in looking at local programs and in visiting states and universities with as broader brush that may paint; not particularly a better picture, but one that has perhaps the substance of the total image of vocational education in this country. By making public tax monies available for specified purposes through enactment of public laws, the federal government has influenced the direction of education in the United States and education as it relates to working life in particular.

As we each know, the most ancient form of training for work, apprenticeship, provided the pathway to literacy for those in colonial America who could not pay for formal education. Later, industrialization called for expanded educational opportunity for factory workers and a need met by numerous privately supported institutes wherein science was combined with practice. The federal government's catalytic role in education in this country was emphasized with the passage of the Morrill Act of 1862. This landmark act provided each state with a grant of federal dollars for land, the interest from which was to be used to support and maintain at least one college devoted to agriculture and the mechanical arts.

This act marks the first attempt to use federal support for education as an incentive to the states to attain a specific national goal; that is, to provide the skilled workers needed by an increasingly sophisticated agriculture and burgeoning industry. The catalytic federal role was carried further in 1917 with enactment of the Smith-Hughes Act, (with which many in this room are very familiar and which continues to provide funds today) which established a precedent for federal participation in secondary education, going well beyond that of higher education. The act extended federal aid to public secondary schools by providing funds for the support of training in a number of occupational fields and for the training of teachers. This act in particular, formed the genesis of the federal/state involvement in vocational occupational training in the United States today. With this early legislation, the federal government's catalytic role in education became well established.

In subsequent years and as national needs dictated, significant legislation was enacted in response to several things; specifically, skill needs for World War II defense economic recovery, as a weapon against structural unemployment and recently to respond to the nation's increasing egalitarian concern for those who are most disadvantaged in the job market. From the outset, the federal involvement in education has been an intervention to upgrade the citizens of the nation in response to economic and technological change. From this involvement, public policy relating to education and working life has been debated, established, and changed. We are currently in the process of that change, with respect to national public policy discussion. This public policy discussion seems to be focusing on six or seven central issues.

I wanted to share these with our colleagues from other lands in particular because in reflecting on the OECD conference last week, it seemed to be very multilateral in universal concerns. They include education and work as they relate to economic development--clearly under the Marshall Plan, the OECD's initial sponsor and creator, economic development was the pervasive theme which has produced many results of a positive nature among the member nations. Just recently we have begun to think about and deal with the influence of education, not only in this country but internationally, as it affects economic development. A second point, career education is a means for developing an awareness of career options and the requisites for them, the transition from school to work, which was a major theme in Paris and is a major theme in every country there, and in ours in particular. Vocational and occupational education is the avenue for the acquisition of specific skill which becomes a very questioned item in public policy today, and I will touch on that again in a moment.

Job development versus skill training is another policy issue; guidance and counseling for working life. And finally, but not completely in any series or list of events for public policy discussion, the education and labor connection to increase the relevance of education to the workplace and in turn the relevance of the market place to the school.

Included in the current debate is the question of the desirability of moving from a more skills-oriented policy toward one of job development. Now those of you in the United States know that this issue is engaged when we begin to deal with the initiatives of the Labor Department of the

current administration and of past administrations to move in an interventional way into social and economic policy with federal dollars that are not driven by a need for training but are rather driven by a need for creation of jobs. And there are some interesting dynamics that occur when that happens. The recent passage of the Youth Employment and Demonstration Projects Act, more popularly known in this country in the tongue-twisting acronym YEDPA, and the 1978-79 funding of over $2 billion for that YEDPA program, while continuing the Department of Health, Education, and Welfare's program of vocational education at the current level, ought to indicate to those in this room, be you from the United States or from a visiting nation, that the ship is in motion.

The commitment and trend toward the inclusion of vocational occupational guidance and counseling in all secondary systems is another matter for public policy discussion. While it is fairly widespread, quality is too often spotty, and programs are not always available to those who require counseling. It seems to me as an aside to that statement, that the problem with guidance for vocations as I prefer to call it, is not that counselors have been ill taught, not that their number is not legion, but rather that once a young person or young adult or an older adult has chosen to go in a vocational direction we tend to forget them and make the assumption that their minds and their needs and their human conditions no longer will change. That is simply not true, and gives rise to a stronger need for a greater commitment to providing the kind of information and support to those already engaged in training than we have ever experienced before.

Labor and Education Connection

Another major issue has already been mentioned--the labor and education connection. It is receiving intense scrutiny in this country. Unacceptably high levels of youth unemployment alone call for this major emphasis. Factors bearing on youth unemployment, including discrimination, attitudes, motivation, competence, readiness to enter the labor market, wage level, and degree and quality of labor market information, call on uniquely new working partnerships for education and labor which must evolve from in the first instance contact, to communication, to cooperation, and finally to collaboration. In this country, collaboration must rest on the basis of jointly established policy.

In the United States, the federal agencies which relate to these to major interests, the U. S. Department of Labor and the U. S. Department of Health, Education, and Welfare, have recently executed an agreement to foster the policy which can lead in fact to collaboration. Through policy directives development, legislation, and finally through education and training programs at the local level, the connection between education and training will take form. Now that sort of ties up the policy issues and that is not an exhaustive list. If I were to make it exhaustive, you would begin to disbelieve the number of issues that we must deal with today. But I think they are of the most highest priority.

Let me deal now for a moment with the delivery systems. As you have visited around this country, in the past week, you have found that we have a variety of delivery systems for occupational and vocational training. We have two basic levels: the secondary level and the postsecondary. At the secondary level we find three primary delivery systems. One is the comprehensive high school, which offers a major academic program with a rich offering in many cases of vocational occupational training. We have the vocational skills center which focuses essentially on skill training programs for a number of occupations. Then another variation is the vocational high school which, as opposed to the comprehensive high school, offers a rich mixture balanced more toward the vocational than to the academic but offers as well the option for academic study.

At the postsecondary level we have the one thing that we can claim as uniquely American in its contribution to education in the world and that is 1235 community colleges of this country which now provide occupational vocational training as well as academic studies on almost an even balance across this country. We have in addition at the postsecondary level the colleges and universities, one represented here tonight in our presence on its campus, which offer concentrated occupational training, leading to jobs, in addition to academic studies. And if that's not true, it ought to be. Finally, a new delivery system, which I have already noted very briefly, the Comprehensive Employment and Training Act programs of the Department of Labor which represent a relatively new local education and training delivery system and is localized only if it is connected to the existing education system.

The secondary and postsecondary systems relate primarily to those who still have retained a tie to formal public or private educational institutions. CETA on the other hand, provides training to those who no longer have such a tie. It offers actual work experience along with occupational training. It, like YEDPA, calls on the cooperation of education and labor at the federal, state, and local levels to assure that the education delivery systems enlarge the capacity to respond to issues fostered by a federal policy shift to job development. And I must place on that, a very small caveat that it is an apparent federal policy shift.

There are also other major educational and training systems which relate to those who have exited from formal education which we often overlook. There are three in number: massive private sector training provided by business and industrial firms on site; training offered to members of the armed forces of the United States provided to the various services; and private vocational schools and technical institutes which offer yet a third nonschool option for continued or upgraded training. There are some interesting variations on those things which I'll not go into.

Training for Work Life

Now let me spend just a few moments dealing with the status and results of the American experience in training for working life. This is formed somewhat in the nature of the outline of discussion on that topic at the OECD conference. And it deals with the diversity of training which, in this country, attempts to meet the needs of citizens and the economy. The public policy discussion is increasingly focused on the extent to which the systems and particularly the public sector are responding to emerging critical issues in education and working life, especially with respect to compulsory schooling, early school leavers, the reform of upper secondary education, the reorganization of higher education (if not reorganization, redirection), and career and occupational guidance. In the compulsory schooling sector, we find most of what happens in this country with respect to vocational education. We served through this system some 16 million people in 1976. The joint federal/state/local contribution is over $5 billion with only half a billion of that coming from federal sources, which is a figure that should highlight, for you, the catalytic role of the federal dollar.

We have over 85 percent of those individuals completing vocational training who are available for employment found jobs in this country. Against this, less than half of the completers or general curricula, not including skills training found and retained jobs the first year after exiting the public education system.

We have another unique feature of the program which has been mentioned a couple of times already this evening and which I expect you ran into as you visited around our country over the last week. That's something called the vocational student organization, the Future Farmers of America, the Future Business Leaders of America, the Vocational-Industrial Clubs of America, Distributive Education Clubs, Future Homemakers, Home Economics Related Occupations called HERO, the Health Occupations Student Organization--the newest of the several and another one tangentially related, the industrial arts student organization, which has just come into being.

The student organizations are an integral part of the curriculum. They engage over 60 percent of the students enrolled in vocational education programs and that's a figure that varies depending on the organization. But they are an extremely important part of what we are about in vocational education, because these organizations have at their heart, a focus on the life skills needed by young people in order not just to survive in this world and particularly in the world of work but the skills needed for effective adulthood: those of citizenship, of consumerism, of effective leadership, and so forth.

Let me just highlight briefly other outcomes, other impact statements. From Fiscal Year 70 through Fiscal 76, enrollments in vocational education in this country increased by 71 percent. Sixty-four percent of those who completed programs in Fiscal 76 and available for placement found employment. Seventy-five percent of postsecondary completers available for placement found employment in the field for which they were trained or in a related field.

We have special emphasis programs in this country; programs for the handicapped. And that was a major theme in Paris last week. And it was surprising to me, very frankly, that it was as international in its flavor and scope as it was. In this country, nearly 300,000 handicapped persons were enrolled in vocational education programs in the last completed fiscal year; an increase of 150 percent since

1970. Four out of ten completers of those programs who were still in school were employed. Six of ten completers who were no longer in school were employed, so nearly all of them are so engaged.

We have a focus on disadvantaged populations. Nearly two million students were served in programs for the disadvantaged in Fiscal Year 76, which is an increase of almost 150 percent over six years before. Eighty-three percent of these students completed their programs according to a study by Olympus Research Associates.

In cooperative education, working while learning, total enrollment for all cooperative programs was over half a million or about 611,000. Work study programs; 53,000 enrolled in 1976, 243 percent more than six years earlier. Our consumer and homemaking programs enrolled 3.5 million in 1976; a 36 percent increase since 1970.

We have programs of national significance fostered out of the office which I now head and driven in many ways to the center which you have been visiting here this last few days. In the areas of research and exemplary curriculum development, training fellowships, hundreds of projects, driven by very few million dollars, are contributing to the improvement of the quality of programs throughout this great country.

With all of that, only about 60 percent of the students and adults in this country who could benefit from vocational education are actually able to access them. The goal, the goal we all have mutually, is to increase access to preparatory programs such as these providing an adequate number of programs of sufficient scope focused on the labor market need.

We have talked at some length in the last year or so about the smooth transition from school to work. It is a remaining issue. It is not just a factor of occupational skills and job market. We have a number of federally funded efforts moving in this direction including the "Right to Read" program. And interestingly enough, American colleagues, the "Right to Read" program has now been expanded by a law passed last week by the national Congress to include a basic skills program to encompass in addition to reading, communication and computation. We very strongly believe that those are initiatives and ventures which will indeed assist in the transition from school to work.

A major new initiative, and one which rose out of the OECD conference last week, has to do with early school leavers. We are beginning to find that there is no articulated or organized system in this country to deal with the some 24 percent of our high school enrollees who, in fact, do not complete secondary programs. These early school leavers have few viable alternatives and we are examining those few and beginning now to come up with hopefully, some new and creative ideas and a centralized program to address them. It is indeed true that the YEDPA/CETA programs are helping in this area. But, I think that will only occur if the jointure between education and CETA is made a real one.

I could speak at some length about the reform of what is called on the international scene, "upper secondary" education, which typically is the sixteen to nineteen year old age group. The most significant reform issue I think personally, is found in curriculum change in this country where we are moving to a competency-based program, where seat time and two-by-four-by-six curriculum are no longer the vogue but rather were performance and skills and knowledge gained in fact become the driving force behind whether or not one achieves success.

Another new venture is experience-based career education. It is a venture of both vocational and career education in this country. It is taking education into the marketplace, greatly strengthening the tie between education and the labor market and providing students with on-site, real world experiences both for occupational skill development and for related academic training. In the higher and adult education area, as far as it is influenced by vocational education, I think we are dealing in a time of a stepped up awareness of the need to provide supportive services to new entrants to the university system. I was surprised to learn today from the provost of this great university that well over 25 percent of the enrollees here, 25 percent of 55,000 students at the Ohio State University, are over twenty-five years of age. That's an amazing statistic to me. And it portends a future which is indeed representative of a new age in education and that is the age of the adult.

I have already talked a bit about community colleges. I think the neat thing about community colleges in this country as a part of our delivery system is that they have not only maintained and extended their community response capability, but they have done it without becoming junior universities. They have retained that community labor, they have become and are increasingly becoming more responsive to

the diverse wide-ranging needs, particularly of middle aged and older adults, who seek a diploma after many years of work experience, and in a situation where we must be able to give them credit for that work experience toward the accessing of that diploma.

Policy Issues

A fifth issue and one of those policy issues that I mentioned earlier is the whole business of career education and occupational guidance for vocations. Just simply to be able to provide information and continuing support to those who begin to make a choice about occupations, about vocations, is a very very serious issue in the career education domain which is a fairly new venture in this country. Over half of some 16,000 school districts in this country have implemented career education in some form or stage over the last seven or eight years.

In 1974-75 alone, 20 percent of all school teachers were given in-service on career education. This is a very significant figure it seems to me. The movement is gaining momentum and has had a major impact on the transition to working life attitudes and perceptions about work as an honorable life pursuit, and indeed, the changing role of the American workers.

The business of vocational education as a tool for economic development is one that we are just beginning to get a sense of urgency about in this country. There are certain states, such as Oklahoma, South Carolina, Maryland, and a few others, who have seen this with some foresight a few years ago and they are in the leading position in the area of industrial training and development. Across this country, however, we are still in a very neophyte stage in this area. I think that it is safe to say that the parameters for education's role in all of these issues are clearly being explored on a worldwide basis.

The new vistas for education, I think, must be explored and emerge if the essential connection between education and work is to be made. This might focus on the expansion of training at the work site. I think it is clearly incumbent upon education in this country to move education out of the schoolhouse and into the workplace, if it is to really have the flavor of the real world setting about it. I think we are going to see increased flexibility in the postsecondary systems to meet the needs of new workers, people who have

never worked before, the three million displaced homemakers in this country who want to work, and perhaps most importantly, the continuing needs for upgrading and retraining of incumbent workers. I think the postsecondary system, including the universities, must respond to this new venture. We are going to have to look more and more at the expanded use of the resources of business and industry for all kinds of resources, all kinds of leadership and training assistance in this expanded venture. And finally, I think we must, in the sense of this, look toward the dissolution of institutional barriers that limit the acquisition of valuable training resources such as the skills of senior workers as teachers much along the lines of a journeyman as an apprenticeship instructor which we have observed and see as a valuable contribution to improve work skills on the work site.

I think we are in an age, as I have mentioned before, of continuing education. It is a time for policy reform. In the year 2000 in the United States, 50 percent of our population will be in the age group of thirty to sixty years old. Increasing longevity and the removal of barriers to long term employment of senior members of our society provides a potential source of skilled employees not presently utilized. I think that the political and social consequences of failing to use this resource will be enormous. I am very much up on the idea that the future of this whole educational venture may very well rest on what we do about adult education and continuing education in the next five to ten years.

In the American experience of education and working life, it becomes clear that a careful analysis of directives and policy affecting the preparation and retraining of people for work is essential. Equally clear is that such analyses and study will result in policy reform which offers new directions to both the public and private sectors for assuring a continuing supply of trained workers.

A concept of policy reform is not new to you from our visiting countries, I am sure. We have dealt too much perhaps in this country with policy development. And in the doing of that, we have created diverse policies all aimed at treating the needs of a common client. I think it is clearly incumbent upon us at this time of our lives, in public education and particularly in vocational and occupational education in this country to look at the divergent policies that are driving the dollars and the other resources toward a single individual. And through

a reform process begin to bring the pieces of those divergent policies together so that we can have a solid base for moving the interventions of time, people, and dollar resources into place to correct some of the problems of the disenfranchised, of the disadvantaged, and of those who are not working to their full potential.

I think that high on such a list of discussion items will be the central issues addressed not only in the OECD conference but in your own minds. And the whole business of strengthening and enlarging and improving the quality of preparation; front end preparation for working life, new strategies for improving the transition from school to work; the whole business of local, state, and federal agency collaboration in this country is really being scrutinized very carefully. Clearly, the business of new joint ventures for reducing youth unemployment particularly in urban centers and in isolated America, will become, and continue to be a major policy and program issue. The improvement of the quality of both general and occupational education, especially at the postsecondary and higher education level remains with us as an issue. And finally, the major expansion of career and occupational guidance to increase the provision of those choice-making pieces of information needed for lifelong occupational change remains.

Thus, the American experience in education and working life is clearly in a time of transition. That experience, based upon its rich history and its programs points clearly toward a future which requires new thinking, vision, and rededication to the fundamental role of education as a major thread which binds the fabric of a growing, expanding, and changing economic and social condition.

I think that a concerted and directed movement to address the current and future policy issues addressed in some of these comments can and perhaps must result in a new model which responds to technological, economic, and social change. Let me conclude these remarks with some signal to you about those things which we think the work of the federal government, as a catalyst, has done well over time. Indicative of this is the fact that dollars spent now represent about 8.5 dollars of local and state dollars to every federal dollar spent on vocational education. So the seed money, the leverage money concept of federal initiative has done a pretty good job. But there remain many unresolved issues.

I want to only share with you very briefly and in sort of summary to these comments the additional element that I think is needed that goes beyond the dollars. And that is a perspective of leadership and of position and a willingness to take the risks of setting forth priorities and saying number one is most important and number eight among those eight is least important. It's still important but given limited resources, particularly of time, people, and money; the three primary resources at our disposal we will deal with the first first and the second second. And that's risk-taking not only in the federal government and its bureaucratic structure of limits, but also whether you work here at the Ohio State University and in this great center (The National Center for Research in Vocational Education), or whether you work from the visiting countries.

It is important in the way we think about what we represent as individuals that we, with respect to our role in education, that we can no longer be just the receivers of that influence. We must make the turn that puts us in positions of leadership and take the risk and go with that. We are not going to win all of those battles, we are not going to achieve success in every quarter. But we will give it a shot and we will try.

Priority Issues

I want to list for you the eight priority issues that I bring to my new office as the deputy commissioner for occupational and adult education. There is not one of them that is going to surprise you because in some way they have each been touched upon in the last thirty minutes or so of my remarks to you. But I must set them in priority, to give you some sense of the fact that we recognize the need for leadership, the need for taking positions, and the need for firm policy if the federal role is to move from being one that drives local and state dollars to one that calls for improvement of what that has brought or if you will, what that has wrought.

Our first priority is and will be on establishing that positive linkage with the labor department, the CETA programs. The vocational education system in this country must surface and serve as the primary deliverer of education and training for work for the CETA eligible client. If it does not, this country will have a dual education system.

The second priority is that of placing the highest of priorities, below the CETA priority, on expanding and improving programs for youth in the inner cities and in isolated rural America. Dropout rates which double or triple the national average are becoming the rule in these locations. Youth employment rates of 20-45 percent are now commonplace. For black males ages sixteen to nineteen in the city of Baltimore, the rate now exceeds 46 percent. These statistics shock us. They are unconscionable. They signal a failure in our education system. I have already mentioned the fact that we ought to be building on the evidential material that says that a kid that has gone through vocational education is unemployed at a rate half that for those who have not. We do not tell our story very well in America, my friends. We have a good story to tell.

A third is what I am calling program availability and accessibility. I have already mentioned that we enroll less than 60 percent of those who could profit from vocational education in this country. We do still suffer from a lack of facilities, equipment, and in some cases teachers. We restrict our programs to the schoolhouse when many could be operated successfully in the workplace. I think the big area under accessibility will be for adults. There are 300,000 adults incarcerated in the correctional institutions in this country. We serve less than 10 percent of them. That too is unconscionable. We are in an age of continuing education.

A critical issue in our priorities is number four: planning, accountability, and data. Without good data we cannot have good planning. Without planning we are subject to errors in judgment and without good judgment we can have neither good data or good planning. It is cyclical. It is interdependent--it turns upon itself. And the system is not good. It is one of the reasons we are in trouble right now with the Congress and with our colleagues, at the chief school officers' level, because we have not provided the statistical evidence of our outcomes. It is not that it is not there, we just have not been able to muster it up. Now that is a very harsh criticism of ourselves, but it is very true and I suspect that our colleagues from Denmark, Sweden, England, et al, find very similar problems.

A fifth priority I have already mentioned at some length is guidance for vocations. The only thing I want to say further about it is it ought not to be a separate system but one which is couched under the umbrella of pupil personnel and adult personnel services. And it must really focus on

two populations of people (1) that population which is yet to make that choice about a vocation and (2) that population which has made that choice and has a continuing need for support.

A sixth is one that I have not touched on much this evening and that is the whole business of vocational equity. We have a big issue in our federal legislation now about sex equity, the removal of stereotypes chivalrous of sex from curriculum, from teaching practice and from the entry to our programs. We see daily issues surface surrounding the problems of the displaced homemaker, of men and women desiring either to change occupations or to enter the work force for the first time. We have another full set of issues from the Civil Rights Act under Title IX, under Title VI, and the Rehabilitation Act, Section 504 which requires accessibility for the handicapped. It is not enough to know the sections of the acts. It is not enough just to have acknowledge of them. It is perhaps enough to take some action on their basis.

I have already touched a bit upon those who are persons with special needs: those who are handicapped and those who are disadvantaged. That whole population represents my seventh priority. It is one in which we have made great strides. My guess is that there are 2.5 million we have not yet identified or served. But we have made great progress in a very short period of time. That happens to be a pet area of mine as many of you know. And we have new initiatives fostered under a separate act for the Education of All Handicapped Children Act in this country.

And eighth, vocational education's relationship to general education with a focus on the basic skills. It goes almost without saying that one is not going to be successful in an occupation without being able to command the basic skills of reading, writing, and computation, or being able to make choices about the use of disposable time beyond the use of it for leisure purposes; about objectives for family living; consumerism and health, both mental and physical. I think vocational education clearly has a role in this whole business, relating more closely to the basic education system of this country and in fact where necessary, doing something about it, not just referring people for compensatory help.

I hope, my friends, this gives you somewhat of a view of the scenario of public vocational education in the United States. It is not a massive system; it is not an unmanageable system. It is a system that has had great

growth in the last ten years, quadrupling or more the dollars spent and the numbers of people served since 1968. It is a system that is very decentralized and very dependent upon local initiatives and local action. The federal role is one of stimulator and catalyst. The state role is one of manager and supporter. The local role is one of doer, accomplisher. It is a system that is working. It is a system that I think needs fine tuning and refinement; it needs extension, expansion. It needs new dollars for new and different purposes. But it is a good system. It is one of which all of us in this room are particularly proud. I am particularly proud of it, or I wouldn't be doing what I am doing. The challenges that lie ahead of us ought to be addressed, it seems to me, with vision, with enthusiasm, and perhaps most of all, with optimism.

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